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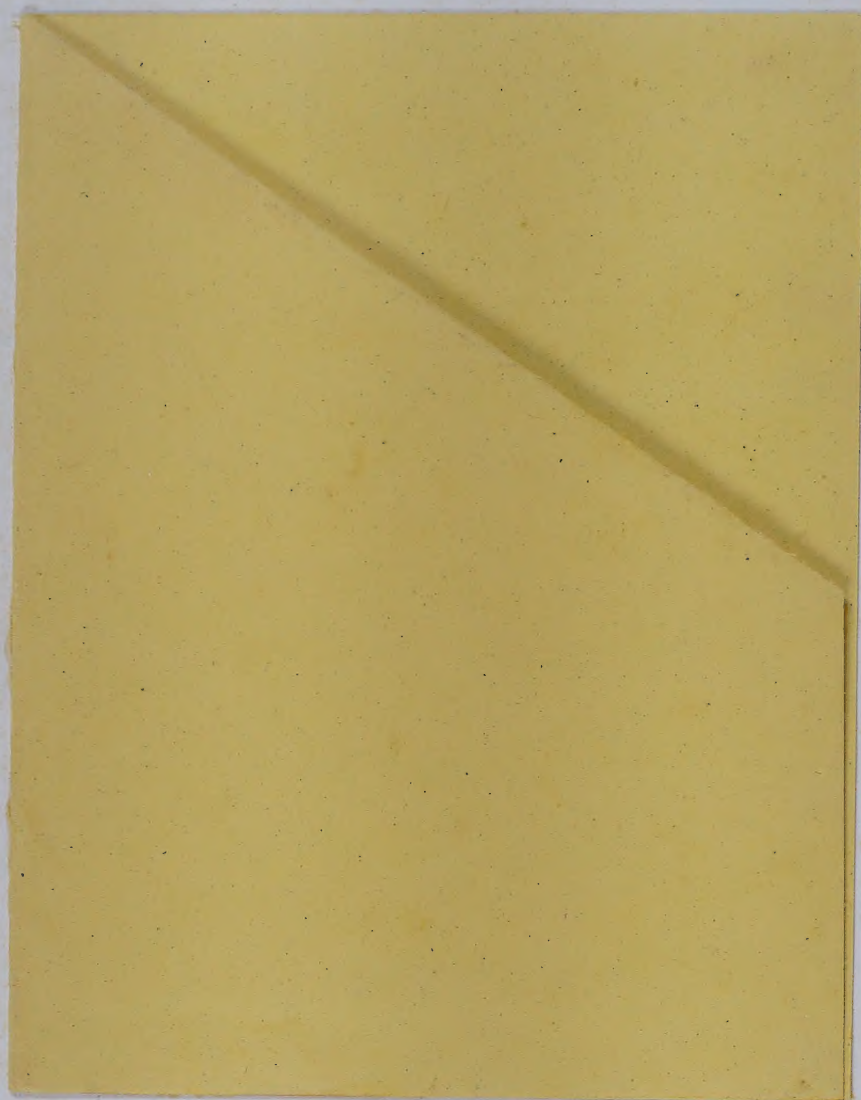
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Participation and Education in Community Water Supply and Sanitation Programmes

A Selected and Annotated Bibliography

13

Bulletin Series



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COMMUNITY WATER SUPPLY

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Participation and Education
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Sanitation Programmes

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Annotated Bibliography

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INTRODUCTION

In this bibliography on Participation and Education in Community Water Supply and Sanitation Programmes, which is a companion document to the literature review, published in IRC Technical Papers Series No 12, the reader will find a number of abstracts of selected books and articles on the subject. Most of the abstracts are considerably longer and more detailed than one usually finds in works of this kind. The reasons for this are that much of the material is difficult to obtain, often not even officially published. (Numerous requests for relevant documents have not been met as yet.) The author has therefore considered it useful to give a fairly complete picture of the contents of each work reviewed, so that in most cases readers will no longer need to refer to the complete text.

Relevant material was found in the fields of sociology, cultural anthropology, community development, communications, health education, adult education, public health, preventive medicine and sanitary engineering. Twenty eight periodicals, mostly over the last ten years, were read superficially and twenty three bibliographies were studied. Of the 10.000 references studied approximately 800 documents were reviewed in detail. as a result 145 documents were selected on the ground that they dealt with projects in which either the inclusion or the exclusion of a participation or education component had demonstrable effects on the success of those projects. In the first place, this has involved a personal choice on the part of the author. Emphasis has been placed on field studies illustrating the social aspects of water supply and sanitation projects. In the second place, it is obvious that much more material exists than that which was available for this study. Therefore, this bibliography

should not be seen as final or exhaustive, but rather as a personal contribution towards the development of a cross-cultural study of communal participation and education.

The abstracts appear alphabetically in order of authors' names. There are three indexes: one of authors' names, one of keywords and one of countries.

The abstracts contain a number of words and expressions which are used in their specific sociological meanings. For the non-specialist this may be confusing at first, but the abstracts have been written in such a way that the argument will be clear to the readers without a complete understanding of the sociological research procedures followed. Besides, the precise meaning of words like "survey", "perception", "factor analysis", "case study" etc. can be found in a good book of reference on sociology and methods of sociological research.

Quite apart from any difficulties posed by the terminology, it is hoped that the results of the many studies, as abstracted in this volume, may speak for themselves and that this bibliography and the literature review will stimulate the interest and the cooperation of many people and institutions concerned with community water supply and sanitation.

ir. P. Kerkhoven,
Programme Officer

1. ADEMUWAGUN, Z.A.
(University of Lagos, Nigeria)

The role of school health education in developing countries,
the Health Education Journal, 29, 4, (1970), pp. 111-120.

DA: -
CO: -

AN: The importance of health education in developing countries is stressed, in particular practical school health programmes, as an investment for the future. The link between socio-economic conditions and personal, environmental and community health necessitates an integrated approach. Solving health problems through human relations and community organizations is most appropriate, given the tradition of mutual assistance in most developing countries.

Regular school health programmes should consist of school health services, school health instruction, environmental health programmes in school, and coordination of these activities, e.g. through a school health committee. Coordination of school and community health programmes should take place as well.

On the one hand the medical and health agencies of the community should assist in school health education activities. On the other hand the school health programmes should be developed and function in the context of, and complementary to, the total community health problems and programmes. A community-school health council, made up of representatives of the homes, community and schools is suggested to realize this link.

KW: health education, organizational structure, planning, target group.

2. ADEMUWAGUN, Z.A.
(African Regional Health Education Centre, University of Ibadan, Nigeria)

The Ibadan comfort stations, an experiment in environmental sanitation health education, summary report; African Regional Health Education Centre, Department of Preventive and Social Medicine, Faculty of Medicine, University of Ibadan, Ibadan, Nigeria, (October 1975), 39 p.

DA: 1970-1975
CO: Nigeria

AN: Environmental sanitation problems are particularly acute in the slums and congested inner areas of Ibadan, where few public facilities for waste disposal exist. Therefore, comfort stations have been developed since 1970, consisting of toilets, bathing and laundry facilities for an extended family compound of 300 to 600 persons. These stations are constructed under the direct management of the Ibadan Wastes Disposal and Drainage Board, with the participation of the families, who are also responsible for operation and maintenance and are the legal owners.

The study reported the results of a two year investigation of nine comfort stations. Objectives were the identification of factors contributing to the continued utilization and maintenance of the stations, and the isolation of the role of a special health education programme.

Twelve principles were formulated for the health educational approach, which was initiated by the collection of data in the study area. Data collection methods used were community observations, interviews (both formal and informal) and with a structured questionnaire applied to a sample of 300 male and 400 female respondents), and written and oral reports on the target groups from other sources such as public health accounts. More rigorous methods of data collection were not used, since their validity and authenticity would be questionable in view of the low percentage of literates (24 per cent) in the sample.

It was found that previously conditions had been very bad, with only one public toilet and refuse depot, two public water taps and three private wells for c. 5000 people. Household hygiene in the city was poor, but the home villages and farms - still regularly visited by the townspeople - were much cleaner. Enquiry into attitudes and knowledge on excreta disposal, water, personal appearance and public latrines showed that people saw no link between health and environmental sanitation. They were, however, aware of the symptoms of water-related diseases, of the vermin and the general ugliness and dirtiness of their surroundings. The third part of the enquiry concerned leadership patterns. Education was found to be only one of the criteria. Others were religious responsibilities, special contributions to community life and permanent residency.

The results of the questionnaires included sociological characteristics, reported previous methods of excreta disposal, appreciation of comfort stations, expected problems before their construction, environmental sanitation knowledge, community participation, leadership patterns and reported present methods of excreta disposal.

Of the 55 per cent of the respondents who reported that they had not taken part in the construction, 24 per cent said that they had never been told. The use of chamber pots instead of the comfort stations was found to be persistent (62 per cent).

Preconstruction problems were related to the mistrust of government intentions and government officials, due to previous experiences with taxation and public health inspection. Fear of government appropriation of the land donated for the stations and unwillingness to donate land for the mere purpose of building latrines also played a role. Construction problems were caused by a shortage of free labour and building materials, and post-construction problems by high electricity and water bills, intermittent water and electricity supplies, a high degree of dereliction from maintenance duty and repair costs.

These findings led to an educational programme to improve use and maintenance. The programme consisted of general committee meetings, attended by representatives of the nine stations, the one health council functioning in the area and the agencies involved in the programme and local general assemblies of all people in each family compound, resulting in local conflict resolution. To stimulate participation, local communication systems and methods were used, with local pictures as an educational aid. Other methods were informal group discussions, face-to-face counselling, demonstration of anticipated behaviour, periodic follow-up with supporting social visits, and the use of local resources like a community development society.

The project staff's evaluation consisted of monthly progress reports on utilization and maintenance. The author concluded that health education constituted an essential contribution to the use and maintenance of the excreta disposal facilities, but that provisions should be made for the continuation of health education after the termination of the special programme. Integration into the regular health service, or the use of members of the extended family groups as voluntary health workers was recommended. In the station with the best record on utilization and maintenance, it was found that a retired Public Works Department Officer had continued his educational function in a private capacity.

KW: attitudes, constraints, evaluation, excreta disposal, health education, knowledge, leadership, media and methods, operation and maintenance, practices.

see also: ADENIYI (1973), and
PINEO and SUBRAHMANYAM (1975)

3. ADENIYI, J.D.
(Department of Preventive and Social Medicine, University
College Hospital, Ibadan, Nigeria)

Cholera Control: problems of beliefs and attitudes,
International Journal of Health Education, 15, (1972),
pp. 238-245. (English, French, German summary)

DA: 1971

CO: Nigeria

AN: In Ibadan, Nigeria, a survey was carried out in the indige-
neous districts during the outbreak of a cholera epidemic
due to inadequate water supply and sanitation facilities.
Area sampling was used and 250 respondents were interviewed on
their beliefs, attitudes, and behaviour toward cholera, by
public health inspectors who had received a short in-service
training for this purpose. Awareness of the cholera outbreak
was high, (almost 100 per cent) but preventive behaviour low,
(50 per cent had been vaccinated). Major reasons given were
the non-availability of vaccine and time-consuming procedure
(50 per cent), lack of information about vaccination (20 per
cent) and lack of belief in vaccination (15 per cent). A large
majority accepted cholera as an endemic disease (70 per cent).
Knowledge about its causes was high: over 80 per cent of the
respondents knew that cholera is spread by water, flies and
unsanitary conditions. Over 30 per cent thought that vaccination
provides full protection. A small proportion (15 per cent),
including most of those who had no faith in vaccination and who
held superstitious beliefs about the cause of cholera, preferred
native medicine, while 20 per cent had no preference. A series
of simplifications for health education is drawn from the
result.

KW: attitudes, beliefs, health education, knowledge, practices,
preventive health.

4. ADENIYI, J.D.
(Department of Preventive and Social Medicine, University
College Hospital, Ibadan, Nigeria)

Human waste disposal programmes, the place of health education,
International Journal of Health Education, 16, 3, (1973)
pp. 206-213.

DA: -
CO: Nigeria

AN: A baseline study in connection with the construction of 3 "comfort stations" (semi-public toilet and washing facilities) in urban fringe areas in Ibadan, Nigeria. The stations are built by the government in cooperation with extended family units who donate land, contributions in cash or kind and meet maintenance costs.

Two surveys were carried out among the comfort station families before the construction of the comfort stations, a medical one for infections of the oral/anal transmission type (not yet completed) and a sociological one on some personal characteristics, sanitation practices, beliefs associated with excreta, attitudes towards latrines and motivation for community participation.

The survey showed knowledge and attitudinal constraints as well as physically and economically felt barriers. The data were not split up according to social characteristics. The author gives some suggestions on how to overcome the barriers, including microscope demonstrations, model comfort station visits, cost analysis by participants (including comparisons with higher amounts spent on matters of lesser importance), support by opinion leaders and key figures (husband, mother-in-law) and use of local tastes and customs (introduction ceremonies).

KW: attitudes, constraints, excreta disposal, health education, media and methods, practices.

see also: ADEMUWAGUN (1975) and
PINEO and SUBRAHMANYAM (1975)

5. ALLAN, D.
(Unicef Information Service, Geneva)

Kosovo, and end and a beginning, *Unicef News*, 94, 4, (1977)
pp. 18-23

DA: 1966-1977
CO: Yugoslavia

AN: A pilot project was initiated by Unicef in 1966, for providing integrated basic services in Kosovo, an area in Yugoslavia where conditions closely resembled those in developing countries. The project was the result of a new cooperation between the Federal Ministries of Public Health and Welfare,

Education, Labour, the National Mother and Child Health Institute, Republic of Serbia authorities, representatives of the provincial health and education departments and Unicef. Community participation through local coordinating committees was a key element. Programmes to provide clear water were often a catalyst to further development like schoolgardens and feeding programmes, home economic courses and health services.

The health service chain consisted of 194 health points staffed by health assistants, 50 health stations staffed by doctors and 22 communal health centres serviced by 8 hospital-level medical centres, the Provincial Public Health Institute and the faculties of Kosovo's medical and nursing institutions.

Public health workers (midwives, health visitors for schools and doctors who have specialized in community health) get post-graduate training at the Public Health Institute. They are paid through local social insurance funds and are directly responsible to the community they serve.

In 1978 Kosovo will be one of the sites studied by public health officials from developing countries during a Unicef seminar on primary health care.

KW: financing, integrated development, manpower, primary health care, public health,

6. AMERSVOORT, V. van
(East African Institute for Medical Research, Tanzania)

Teaching of better water supplies to medical auxiliaries in D. Warner, (ed.), Rural Water Supply in East Africa, Proceedings of a Workshop at the University College, Dar es Salaam, 17-19 December 1969, BRALUP Research Paper 11, p. 113

DA: -

CO: Tanzania

AN: The author criticizes the limitations of a strictly scientific training of medical auxiliaries for their health educational task in rural water supplies. Boiling, filtration or chlorination of water makes it safe to drink, but the messages to promote such practices may be unsuccessful because of the particular local circumstances. Boiling will be unpractical when firewood has to be collected over large distances by rural women; filtration may be beyond their economic means, while chlorination may lead to unacceptable changes in taste. In such cases, the teaching of additional simple, though less effective, methods is advised, e.g. a three-pots-system for sedimentation; cool storage and regular cleaning and removal

of old water before fresh supplies are added; sanitary behaviour at the collection source e.g. the hanging up of buckets, or standing them on the brims of the well, no spitting, clothes washing, etc.; and late and early fetching in bilharzia infested waters.

KW: health education, training

7. AMSYARI, F.; KATAMSI, E.
(WHO fellow, New York University)

The status of health knowledge and patterns of seeking advice in rural East Java, *International Journal of Health Education* 21, 1, (1978), pp. 34-40

CO: Indonesia

DA: 1972-1973

AN: East Java, (population density 533 inhabitants per square kilometer) is one of the most densely populated areas of the world. A major concern of the Health Education Bureau, set up in 1970, is to find ways of rendering its services more effective within the present health care delivery system with its limited manpower resources.

As a first step in the development of a comprehensive health education programme, the Airlangga Medical School was asked to undertake a study on existing health knowledge, and the patterns of seeking health advice in rural communities. A stratified 'at-random' sample of 20 out of the 7532 villages in the province was taken and 4000 heads of families, 300 key persons and 10 rural health staff members were interviewed, with a health principles questionnaire.

The data showed that the health knowledge of key persons was better than that of heads of families, while health personnel had a very high score (93 to 100 per cent) on all 7 topics (water supply, food hygiene, faeces disposal, refuse disposal, sewage disposal, insect-rodent control and housing). The subject of food hygiene, insect-rodent control and water supply had the lowest knowledge scores of all three groups (47 per cent, 39 per cent and 51 per cent for heads of households, 70 per cent, 66 per cent and 62 per cent for keypersons, and 94 per cent, 98 per cent and 93 per cent for health personnel). Knowledge on refuse disposal was also unsatisfactory for heads of households (57 per cent).

Among key persons interviewed, the average knowledge scores were highest for teachers (89 per cent), followed by the village secretary (82 per cent) and leaders of social organizations

(80 per cent). Village administrators held an intermediate position (74 per cent), while their staff and indigenous midwives scored 60 and 62 per cent respectively.

Asked for their advice seeking patterns, heads of households reported the consultation of health personnel for direct health problems, while the village administration was consulted mostly for other health related activities like house construction, excreta and sewage disposal and insect-rodent control.

In view of the limited knowledge of these consultants, rural key persons, and in particular the village administration will be, in future, trained as part of a model comprehensive health education service which is presently being developed. Evaluation will include a follow-up system to determine the application and extension of the knowledge gained and a study of the decrease of gastro-intestinal infections in the study area. After several evaluations, plans to replicate this model for the whole area of East Java will be examined.

KW: evaluation, health education, health knowledge, planning, preventive health, primary health care, target groups, training.

8. AROLE, R.S.; AROLE, M.
(Comprehensive Rural Health Project, Jamkhed/India)

Comprehensive Rural Health Project, Jamkhed, *Journal of the Christian Medical Association of India*, 74, 4, (1972)
pp. 177-180

DA: 1972
CO: India

AN: A comprehensive rural health project has been set up in the south eastern part of Ahmednagar district, India, to alleviate the lack of medical facilities and to offer an integrated programme of curative, preventive and promotional health work, including a water supply and waste disposal programme, with a large degree of community participation in all activities.

The project area were selected by contacting by letter, various community leaders, including Zilla Parishad leaders, politicians, Panchayat Samati leaders and schoolteachers, followed by personal visits three months later. The criteria for selection were: the existence of a "felt need" for medical care; invitation by the community, through the village council and the Minister of State for Rural Development, to start a project; willingness of the community to cooperate and participate by donating land, providing rent-free buildings,

providing staff housing, and active programme participation, and strategic location with good communication facilities. The community thus selected for the main centre of two districts was Jamkhed. The same criteria were applied to select subcentres, where auxiliary nurses and paramedical personnel provide primary health care, with additional involvement of indigenous practitioners, schoolteachers and other community leaders.

The integrated health programme included nutrition education, a school feeding programme, mass immunization, antenatal care, mass education and services on family planning, leprosy and tuberculosis control, school health services, central and mobile multipurpose clinic services and environmental sanitation activities. In all components community leaders were given specific responsibilities, such as the listing and collection of children for vaccination (70-90 per cent average return). The environmental sanitation programme consisted of the promotion of latrine construction, demonstration of a modified form of soak pits for refuse disposal, and construction of wells and percolation tanks for health and irrigation purposes. A criterium for obtaining water supply assistance was that the farmer should set aside two to three acres of irrigated land during three years for the production of high protein food for the supplementary schoolfeeding programme.

KW: preventive health, primary health care, selection criteria

note: This project has also been reported in V. Djulianovic and E.P. March, Alternative approaches to meeting basic health needs in developing countries, WHO, Geneva, 1975, pp. 70-77.

9. BACKHEUSER, M.P.; KAMPEL, M.M.; PEREIRA, A. DA COSTA
(Programa de Educaçao Comunitária para a Saúde, MOBRAL, Rio de Janeiro, Brazil)

Um programa de educaçao comunitária para saúde, (a programme of community health education), *Boletín de Sanitaria Panamericana*, 84, 3, (1978), pp. 255-261, (Portuguese, Spanish, English, French summary).

DA: 1976-1978
CO: Brazil

AN: Education and health activities complement each other in the solution of the health problems of a community. Only through an educational approach can community participation

be achieved. The Community Education Program for Health (PES) is a part of the ongoing education project of the Brazilian literacy movement (MOBRAL). This movement is organized at three levels: it is planned at the central level, coordinated and supervised at the regional level and implemented at the local level, in the rural communities. It operates mainly by involving communities in the discussion and solution of their own health problems.

The monitors of the program are members of the communities. They serve as coordinators of the community's efforts to solve its own problems. They do not need to have qualifications in the field of health, 65 per cent of them have educational jobs and only 20 per cent have experience in health work. They are trained in the methodology of the program and in working with groups. Educational material provided consists of books, posters and brochures on hygiene, nutrition, infectious diseases and the protection of drinking water.

By mid-1976 the program had over 200.000 participants in the four states in the north west of the country. Although the main topics for group discussions and action were hygiene (36 per cent) and diseases (27 per cent), other problems which are only indirectly related to health, are also tackled, when they have a higher local priority. Among the activities carried out in 1976 were the digging of 12.962 cesspools, the acquisition of 83.589 waterfilters, the planting of 4.672 gardens, the renovation of 2.941 houses, the creation of 2.091 rubbish dumps, the cleaning up of 2.716 streets and buildings and the vaccination of 65.827 people, while 22.025 persons were conducted to hospitals and dispensaries. 64 per cent of the budget was spent on compensations for the monitors.

The program should cover about 50 per cent of the Brazilian municípios by 1980.

KW: costs, environmental sanitation, felt needs, health education, integrated development, manpower, media and methods, training.

10. BLACKMORE, M.D.; BOYDELL, R.A.; MBERE, E.N.
(International Development Research Centre)

Botswana low-cost sanitation project, paper presented at the Conference "Sanitation in Developing Countries Today", OXFAM/Ross Institute of Tropical Hygiene, Oxford, (5-9 July 1977), 25 p.

DA: 1976-1977
CO: Botswana

AN: In order to provide a low-cost and socially acceptable sanitation system for urban fringe areas, an interdisciplinary project has been developed by the International Development Research Centre and the Ministry of Local Government and Lands of Botswana.

The project was set up after negative experiences with a fibre glass aqua privy. This was disliked because of the unsafeness, offensive odours, lack of comfort, confined space, lack of privacy and the necessity of carrying water to the latrine.

A physical survey was carried out in the Low-Cost Site and Service areas and the squatter areas of four major urban districts: Gaborone, Lobatse, Francistown and Selebi-Phikwe. A checklist served to record the types and extents of toilet facilities, including the superstructures, their design, construction, associated health hazards, and misuse and nuisance factors. An attitude survey established the preferences and financial capabilities for potential excreta disposal systems.

Pit latrines were the type most frequently found (81 per cent), 80 per cent of them provided with pedestal seating. In 37 per cent of the self-constructed latrines an L-shaped screen wall ensured privacy. 50 per cent of the owners of pit latrines were dissatisfied because of odour, fly and caving-in problems, and insufficient depth. Other problems were pollution of the surroundings and construction from material that is difficult to clean, like rough case concrete. Rejection of communal toilets was 100 per cent, because of the lack of responsibility for their upkeep, the lack of sanctions against misuse and damage, and the lack of trust in maintenance by local authorities.

Based on these experiences, 7 types of units in both a high- and low cost version are tried out and adapted, with two or three types selected for further modification during a pilot phase. In this pilot project phase, the users will participate by erecting screen walls and lime-washing the super-structures.

Next to a good design, a health education programme will be essential. Suggested are: health education talks and film-shows, school health education, using sanitation assistants and family welfare educators, radio broadcasts, and publications in the national newspaper and government magazine. Coordination with Town Council Officials, Housing Committee, Health Committees, Social Welfare Committees and Ward Councillors is stressed.

In order to improve maintenance, seminars for plotholders and pamphlets on toilet operation and use, are suggested.

KW: attitudes, design, evaluation, excreta disposal, health education, media and methods.

11. BLACKWELL, J.E.

Fundamental education and village development in Nepal,
Community Development Journal, 4, 4, (1969), pp. 178-185.

DA: 1952-1963

CO: Nepal

AN: An evaluation is given of the Village Development Project in Nepal, an attempt at overall rural development begun in 1952 and phased out in 1963, at which time it was replaced by the Panchayat Movement.

The original design of the programme concentrated on agricultural development. Participation of the community took place through the District Improvement Committees, comprising political district heads and outstanding village leaders, who had an advisory function.

Between 1952 and 1959 a shift of emphasis towards multiple development occurred with projects in agriculture, literacy and education, infrastructure, preventive health and sanitation. Sanitary latrines, 7012 in number, were built and 2.560 tube wells and dug wells were constructed. Village workers were trained for multi-purpose development at training centres. In 1962 self-government was added to the project by law, giving authority, responsibility and financial tasks (partial replacement of the national tax by a local tax) to the village councils. Although villages taking part compared favourably with other villages, the adoption of innovations was below expectations. Explanations given by the author, apart from competition between the two donor-countries (India and USA) and weak infrastructure and communication channels, are as follows: absence of "felt needs" due to lack of "rising expectations"; social distance between highly trained village workers with urban background and the local population; cultural values discouraging initiative from young field workers, and neglect of training in and use of diffusion techniques.

KW: evaluation, excreta disposal, extension, felt needs, financing, integrated development.

12. BRISCOE, J.

(Cholera Research Laboratory, Dacca)

The organization of labour and the use of human and other organic resources in rural areas of the Indian Subcontinent.

Paper presented at the conference "Sanitation in Developing Countries Today", OXFAM/Ross Institute for Tropical Hygiene, Oxford, 5-9 July, 1977, 9p.

DA: -

CO: India, Pakistan, Bangladesh

AN: In the Indian subcontinent various types of wastes such as cow dung, crop residues, vegetable wastes and water weeds, are used as fuel, fodder, building material and fertilizer. The interest in such organic wastes is growing, both for economic reasons, with the stress on small scale, decentralized production processes, alternative energy sources and an ecological balance, and for health reasons, which necessitate the change of sanitation habits. Such apparently beneficial programmes, however, which are technically sound, may end up providing subsidized services to the rich. Therefore, the existing form of labour organization and social relationships, or the particular way in which people exchange and use cow dung and rice straw, water hyacinth and night-soil, should be studied first.

A description is given of the changes in labour organization from 1793, when the impact of British landtenure ordinances became felt, till today, when the social impact of the green revolution gets much attention. On the one hand, there is the continued existence of patron-client relationships, which may explain the reluctance of the poor to adopt innovations which may damage the customary relationships (e.g. the permission to use the cow dung and rice straw of the landowner). It may therefore be easier to introduce completely new practices, such as the use of human excreta, than to try and introduce alterations in customary uses, e.g. by suggesting the mixture of these excreta with the animal and plant wastes already utilized.

On the other hand, the relatively stable patron-client relationship is quickly disintegrating, with the result that the poor can no longer be sure of the free use of organic waste. The growing scarcity of these resources and the development and adoption of improved technologies for their use, which gives them a higher economic value, is hastening the deterioration of the resource base of the poor. Here again, the introduction of the use of human excreta may be an answer, provided that these programmes are explicitly tailored for the poor. Experiences with the introduction of 50.000 gobar gasplants in India showed that the next step, the use of human excreta for an additional resource, was not a difficult one to take: over 30 per cent of the biogas owners in one district already attached latrines to the digesters of their own accord. But the reports also showed

that those adapting the plants were farmers with a high socioeconomic status and often (over 40 per cent) additional sources of income.

KW: adoption of innovations, inequity, social impact,

13. BUCKLES, P.K.; KARP, A.W. CLEMENS, B.W.
(Agua del Pueblo, St. Louis, Missouri, U.S.A.)

The training and utilization of rural water technicians in Guatemala, (Background paper for the 22nd JCHP Study on water supply and sanitation components of primary health care) Geneva, (1978), 1 ann., 10 p.

DA: 1973-1977

CO: Guatemala

AN: Since 1972, Agua del Pueblo, a private voluntary organization in Missouri, U.S.A., has been engaged in the development of a comprehensive methodology for the implementation of a potable water supply and latrine construction programme in rural Guatemala. The rural projects are realized with optimal community involvement. A staged programme is followed (selection, preparation, design, pre-construction, construction and utilization/maintenance) at a rate adapted to the varying organizational capacities of the communities. The major elements of the projects are the use of regional field offices for continued two-way contacts; the creation and use of locally elected village water committees to ensure community inputs in all stages; feasibility studies at the earliest possible stage; voluntary labour and labour intensive construction techniques; and the integration of activities with those of the existing public health personnel, like the Rural Health Technicians who are responsible for health education and community organization. An improved approach to financing, of which no details are given, and the training and employment of Rural Technicians were added recently.

In 1970 only 7 per cent of the rural population, which constitutes 66 per cent of the total population of Guatemala, was served by a potable water system; a percentage which should be 33 per cent by 1984. The greatest constraint to the realization of this goal is the lack of qualified personnel willing to work in rural areas at a reasonable rate of compensation. It was therefore decided to train local Rural Water Technicians for the design of rural supplies and supervision of project installations, including latrines; the maintenance and repair of the

systems; community organization including legal procedures for piping rights-of-way, village committee authorization to collect maintenance fees and coordination with the local health promoters who give classes in environmental hygiene, water use and water storage; and finally for supervision of water testing and quality control.

Criteria for the selection of the technicians are: prolonged residence in the community, literacy in Spanish, a high-school level command of algebra, physics and chemistry, with additional preference for (in order of importance) knowledge of a major Mayan Indian language and experience in related fields, such as plumbing, surveying or basic engineering.

Training will be 'on-the-job' for 18 months, complemented by short courses at educational institutions and in the field, as well as periodic refresher courses. The courses are expected to start in 1978.

This approach has been based on two previous experiences with local technicians. One was a local stone-mason without formal education, who was responsible for community organization and was trained as a construction foreman and maintenance expert for six water projects in the rural Guatemalan highlands. The other was a local sanitation inspector, who was already involved in the supervision of water testing and the ordering of latrines for 24 projects in El Quiché. Due to the slowness on the part of the government in assigning a counterpart engineer to the programme he was given 'on-the-job' training to carry out preliminary studies in 35 communities soliciting potable water systems, to engage the cooperation of health personnel and community leaders, to locate local construction materials (rock, sand, wood), and to design simple systems.

An outline of the methodology for the implementation of the programme has been added to the paper, including the selection phase, with first contacts, initial investigation, first decision, preparation for visit, preliminary visit, second decision, project presentation and discussion, potable water committee formation, community participation commitment, and third decision. The preparatory phase consists of petitioning county support, legalization of water source right-of-way, chartering of the water committee, reafforestation of the watershed, design of a community plan and the holding of a community census, marking of water taps, interim evaluation, health education, and latrine location. The design phase includes scheduling of activities, topography, engineering design, legalizations, termination of latrine construction, education and reafforestation, termination of financial negotiations, and contracting of the construction foreman and mason. The construction phase consists of the delivery of the materials and implementation,

and the maintenance phase of the collection of the maintenance fee, evaluation and servicing.

KW: administration, design, excreta disposal, health education, implementation, maintenance, manpower, planning, selection criteria, training.

14. BURGEAP

La construction des puits en Afrique Tropicale et l'investissement humain, (the construction of wells in tropical Africa and the human investment), Series Techniques Rurales en Afrique, BURGEAP, Ministère de la Coopération, Paris, 4, (1974), 175 p., 5 ann.

DA: 1964-1973

CO: Niger, Upper Volta, Tchad

AN: This manual for village well building with the participation of the community is based mainly on experiences in Upper Volta and Niger. Part one covers the technical aspects of the construction, and is illustrated with many diagrams. Matters discussed are geological situation and siting of the wells, various construction techniques, materials and equipment and maintenance. Part two discusses the possibilities and limitations of community participation. Programmes have been set up in Togo, Tchad (since 1966), Upper Volta (since 1964) and Niger (since 1967), but only in the latter two countries were experiences positive. A short description of their programmes has been included.

A number of conditions were found necessary for an effective involvement of the local population. Among them was an efficient and dynamic cooperation between the agency, local authorities and representatives. Traditional chiefs, government and party officials, the rural extension service and prestigious individuals like teachers and nurses are important in this respect. Another condition was a sedentary rather than nomadic life-style. The latter has no slack season and requires more and widely dispersed wells. It has strong traditional social structures and has fewer contacts with rural extension. Distrust of government intentions, especially of its sedentation policies, is another limiting factor, as is the practice of renting out wells. A further condition for successful community participation is the presence of an urgently felt need, especially for water quantity improvements explicitly formulated by the villagers. Finally, one needs to determine technical feasibility through the investigation of the history of traditional wells, the reliability of the improved supply, and water quality and quantity.

Limiting factors for community participation in villages are the seasonal emigration of young males; undernourishment during the dry season which may necessitate food supplementation; differences with traditional communal village labour in length of time and degree of labour specialization; prolonged activity conflicting with traditional ceremonies and demanding a sustained enthusiasm; incompatibility of labour demands with village hierarchy; traditional division of labour, which make water supply contributions less interesting for males; and knowledge of nearby or earlier construction programmes without popular contributions. The maximum construction period feasible as concluded from experiences in Niger and Upper Volta is three months.

Requirements for national planning are also discussed. A categorization of villages should be based on inventarization of technical and socio-economical data, including selection criteria. These concern for instance water quality, distance, nature of habitat, required depth of wells, degree of village development and presence of cattle. There should be a formulation of demands by the users as a result of the data collection, or an information campaign. A classification and analysis of the data is then necessary, followed by programme selection, e.g. a piped supply programme. Then financing demands attention, after which programme planning and implementation can take place. The area interested in the programme is to be delimited, including the percentage of its population which is sedentary. The possible existence of an extension programme, the formulation of demands by the users and the urgency of felt needs have to be taken into account. Hydrological problems and the compatibility of untrained personnel play a part. Design costs must be estimated, as well as suitability for local circumstances. A choice is to be made in the matter of the organization structure responsible for construction. There must be a list of interested villages, and of the number and depth of wells required. Estimates have to be made of personnel, materials, equipment and cost. A time schedule is then devised.

The existence of a national water supply unit within the administration is considered essential. At the national level, this unit should be responsible for marketing, comptability and hydrological studies, purchases and supervision.

The divisional level should be responsible for garage and workshop, government well construction without community involvement, supervision of well construction on contract, well construction with voluntary labour, through regional supervisors responsible for coordination and supervision of local programmes and mobile technical teams, and repair and maintenance.

At the local level, well construction specialists from the country itself should be employed. They should reside in the

village during the construction period. These specialists should be responsible for the information campaign, in cooperation with the local extension services, the organization of voluntary labour, (clearing of access roads, transport of local materials, digging, cement making, and housing of mobile team), and field training of an assistant well technician.

Maintenance should be assigned to a specialized mobile team with a limited degree of community participation, while the village can also be responsible for housing the team during visits. The use of standardized maintenance forms is stressed, and an example of such a form has been included.

KW: constraints, extension , felt needs, maintenance, manpower, organizational structure, planning, selection criteria, training.

15. CAIRNCROSS, S.; CARRUTHERS, I.; CURTIS, D.; FEACHEM, R.; BRADLEY, D.

Evaluation for village water supply planning (Final Draft)
London, Ross Institute of Tropical Hygiene, (April 1977),
199 p.

DA: -

CO: -

AN: Feedback information on operating water supply schemes is essential for future planning and design. This information can be provided by a multidisciplinary programme and scheme evaluation in the field. In this handbook guidelines are given for the planning and implementation of ten evaluation studies in order to assess the degree of service of completed supplies, to find ways to improve operation and maintenance, to provide feedback to the planners on the validity of the planning assumptions, particularly regarding benefits, to evaluate the present strategy, in terms of resource allocation, village selection, choice of technology, etc., to attract further resources, and to indicate areas for complementary inputs, such as health education and agricultural extension for greater benefits.

The studies include design and cost, water collection and use, water quality, health problems and benefits, the effectiveness of local level organization, extension and two-way communication, distribution and benefits, administrative capability, financial analysis, and economic benefits, and they can be combined into evaluations of varying scope and depth. An experimental design is preferred, in which data are collected

before and after the installation of the supplies in the study villages, as well as in control villages without an improved supply. If possible, studies should be on a longitudinal basis, but cross section studies, time series studies and case studies are also possible.

After discussing the planning of the evaluation, involving an evaluation officer and committee, two types of field study are advised. One is a technical field study in all villages of the study area or a stratified sample of subareas or villages, whereby cooperation with a social scientist will be useful for the collection of information on other aspects. The other is a study in a number of detailed survey villages in a subsample of the technical field study area, using maps or aerial photographs, a household census, observation at traditional and improved water sources and in sample households, informal interviews and formal questionnaires. Other methods of data collection are laboratory tests, clinical investigation, the use of health and water records, agency inquiries and study workshops with water agency personnel and selected local participants.

Details are given on the questions to be answered by each study, the various methods of data collection, the analysis of the data, manpower requirements and policy implications. Some suggestions for further reading are added. Checklists are provided on village level management and access to water supplies, as well as examples of forms for the technical field survey, water collection and water use.

KW: administration, bibliography, communication, costs, design, economic impacts, evaluation, extension, financing, health impacts, inequity, manpower, operation and maintenance, organizational structure, research, water quality and quantity, water use.

16. CAIRNCROSS, S.; CURTIS, D.; FEACHEM, R.
(Ross Institute of Tropical Hygiene), London

Some aspects of village participation in rural water programmes
Paper presented at the Symposium on Community Water Supply in Development Cooperation, Royal Tropical Institute, Amsterdam, (7-10 Febr. 1977), 13 p.

DA: -
CO: -

AN: Government administrators and aid donors on the one hand, and the intended beneficiaries on the other may have

different perceptions of the effects of rural development programmes. The former may see rural water supply in terms of economic or public health benefits, the latter will see it in the light of the complex dynamics of prestige, authority and alliance in the community. Thus a study of attitudes and behaviour towards village water supplies in Lesotho revealed valid reasons for apparently irrational behaviour. Such studies can result in useful recommendations for governments. They can also guide politicians in their actions for local development, where at present they are both manipulating villagers (by using self-help projects for personal ends) and being manipulated by them (by village applications for government fund allocation).

Two aspects of village water supplies, self-help and village institutions are discussed, based on the evaluation of rural water supplies in two districts of Lesotho. The authors noted a real, though small, reduction in construction costs; but both low cost designs and cost of supervision may influence this in one direction or another. Willingness and organizational capacity to contribute may serve as a selection criterium. The authors advocate careful weighing-up and planning of self-help procedures, which should be generally known. Local participation is considered more essential in maintenance, and should be taken into account when designing a system. The government should take the final responsibility, provide local supervision, guidance, training and technical assistance. Local responsibility for regular collections of voluntary contributions for operation and maintenance, without legal sanctions, will usually be beyond village capacity. Village institutions varied more, than was apparent at first sight, which demanded comparative studies in planning a village supply programme. Democratic structures were found to be the most effective.

General conditions for a successful water supply programme resulting from the Lesotho study are a clear and generally known government policy on village institutions to limit intra-village conflicts and guidelines for detailed operation of village level institutions, e.g. a model constitution for village water committees. This should define the responsibilities of the various individuals for each practical task like repair, or keeping a minute book; lines of responsibilities; sanctions; details of government support; possible reward in cash, kind or status for arduous tasks for which none will volunteer; and control of reward allocation. Also needed are maintenance funds from legislated local taxes or government revenue, community participation in maintenance through village institutions with adequate government support. Continued higher level support is necessary. In one district of Lesotho a secondary system of supervisory water supply committees at area

level was formed. This was elected by the village committees themselves, to provide them with additional support and communication channels. Finally, the model constitution is to provide for investigation into the perception of socio-geographical demarcations by the villagers for the planning and design of supply and administrative systems (e.g. single or bi-village supply and administration) to avoid inter-village conflicts.

KW: administration, design, evaluation, financing, maintenance, selection criteria.

see also: FEACHEM et al., 1978

17. CARDENAS, M.
(Peace Corps, Paraguay)

Community participation and sanitation education in water supply and sanitation programmes in rural areas of Paraguay, paper presented at the Meeting of Temporary Consultants on the Study of Water Supply and Sanitation Components of Primary Health Care for the UNICEF/WHO Joint Committee on Health Policies, Geneva, (20-27 June, 1978), 2, 13 p.

DA: 1972-1978

CO: Paraguay

AN: Between 1956 and 1972, the Ministry of Public Health carried out programmes for rural water supply and sanitation consisting of dug, and sometimes drilled, wells and latrine construction. These served as demonstration projects for the villagers, and gave the ministry's sanitary technicians an opportunity to evaluate the response from the communities. During this period the desire grew for a decentralized organization for rural water supply and sanitation within the health sector, with a high degree of autonomy and administrative flexibility. This resulted in the creation of the National Service of Environmental Sanitation (SENASA) in 1972.

This paper describes the procedure for the planning and implementation of village water supply and sanitation projects with a high degree of community participation. The projects are initiated by a visit to the community and interviews with the village leaders to investigate their interest in such a project, followed (when positive) by a meeting of formal and informal community leaders, during which the basic felt needs of the village are discussed. The second preparatory phase, gathering information about the village through three studies, is planned here. These studies are all carried out by, or with the participation of the community members.

The three surveys carried out at village level are a self survey of the community consisting of a description of its area, characteristics and facilities, transportation, electricity, social and cultural characteristics of the villagers, including educational and recreational facilities, beliefs, taboos, religions, economic status and literacy, felt needs, attitudes towards water, excreta and garbage, resources of the area, harvest season, etc.; a topographic survey carried out by a student-engineer with the help of the villagers; and a socio-economic survey, carried out by 20 surveying agents selected by the village leaders from the literate members of the community who - after a short training - visit 20 homes each. Before the survey, usually held on a Saturday or Sunday, the villagers have already been informed about it through the churches, schools and leaders.

The third preparatory phase of the project, i.e. the organization of the community begins with the gathering of an assembly of community leaders, representatives of community organizations and the heads of the families. They evaluate the preparatory stages of the project, discuss the further planning, including costs and financing, and elect the Organizational Committee of the Water Board. This consists of 7 to 9 members. It carries out the first step of the phased construction plan, which consists of the installation of the water source, water storage, pumping equipment, the pipe network, house connections and operation, maintenance and repairs, over a period of ca. 20 years. It also prepares the establishment of the Water Board as the legal organization for motivation, construction, administration, maintenance and sanitation education, in cooperation with the local sanitarian.

The Board itself consists of 9 members, 5 of whom come from the central urban area, and 4 from the peripheral area. It meets once a month. The board is responsible for contacting the leaders of all village level organizations, and also any associations of former residents in the big cities and tapping all financial resources of the village. It holds neighbourhood assemblies and meetings with other groups in the village and calls an annual meeting at which half of the membership is changed, progress is evaluated and new projects are planned. It also forms support groups such as a fund-raising committee, a workteam committee and an information/motivation committee and signs agreements and contracts with the government and contractors. It initiates a school sanitation education programme, as discussed below. It controls village contributions in cash, labour materials and equipment, land, transport and catering, while selecting, in cooperation with SENASA, villagers for training as technicians for operation, maintenance and the construction of house connections. Finally it organizes inauguration

ceremonies, including the blessing of the works, at the beginning of the various stages, and at the completion of the whole scheme.

Sanitation Education is carried out by sanitarians, with some assistance of the Board, whose members are first trained in sanitation education. Other persons trained are administrators, operators, plumbers and community leaders. The educational materials used are posters, slide sets on completed projects in other villages, folders and leaflets for village leaders and teachers, films, locally situated stories and poems, and sometimes microscope demonstrations. Sometimes target groups are the primary schools, with the introduction of a one-month sanitation education programme as part of the curriculum. This programme is planned through a meeting between the primary school superintendent, the Water Board and health educator. This results in a teachers training course of 10 hours, led by the board members, superintendent and health educator, and an integrated school programme in which various subjects like arithmetic, geography, history, arts and crafts, are linked to the theme of environmental sanitation. Various field activities are carried out: visits to health centres for health statistics, investigation of environmental sanitation conditions in various parts of the village, visits to the water board office and construction sites, microscope study of water samples, and discussions with relatives on child mortality resulting in monographs for the higher classes. This programme culminates in art competitions and exhibitions for a closing ceremony.

From the preliminary experiences of the programme it can be concluded that three types of community responses can be expected, which demand three types of programmes for education and participation. Water supply and sanitation may be problems felt by the entire village, necessitating only some help in the organization of the community and the joint initiation of the programme. When problems are felt by the leaders only, these will need support to motivate the other villagers with all the media available, including a primary school programme, stressing the health risks. Problems felt by the sanitarian only demand the longest and most difficult programme, with initial surveys, including the incidence of water and sanitation related diseases, and extensive educational and motivational programme and assistance in the filling of other deeply felt village needs.

KW: administration, evaluation, health education, implementation, leadership, maintenance, media and methods, organizational structure, planning, research, target groups.

see also: Courtejoie et al. (1978)

18. CARRUTHERS, I.; BROWNE, D.
(Wye College, University of London)

The economics of community water supply, in R. Feachem, M. McGarry, D. Mara, (eds.) Water, wastes and health in hot climates, London: Wiley and Sons, (1977) pp. 130-161.

DA: -

CO: -

AN: Allocation of water supplies implies the choice or division between urban areas, rural areas with high economic growth potential and rural areas with humanitarian needs. For each rural area, the authors stressed the need for the presence or input of additional facilities for economic, health and social benefits. Selection criteria for humanitarian schemes should be the distance, reliability and quality characteristics of existing water supplies, in addition to special priorities such as high risks of epidemic disease and severe droughts.

There are also general technical and demographical criteria to be met, as well as evidence of local need and involvement. Low-cost schemes may help to satisfy cost-per-head criteria, but the development of self-help water supply schemes may be less cost reducing than imagined due to inadequate planning, technical weakness, disorganization of labour, and once-and-for-all-payment feeling. These conditions may lead to deprivation of resources for other water supply schemes or for other vital sectors of the economy.

KW: planning, selection criteria

19. CELESTIN, H.N.
(Research and Control Department, Ministry of Health, St. Lucia)

La educación para la salud: función que desempeña en un programa de lucha contra la esquistosomiasis, *Boletín de Sanitaria Panamericana*, 82, (1977), pp. 520-530 (Spanish, English, Portuguese and French summary).

DA: 1970-1975

CO: Santa Lucia

AN: One of the objectives of the Research and Control Department of the Ministry of Health of St. Lucia is to investigate schistosomiasis control procedures. Three valleys were selected to evaluate three different approaches to the control of the disease: chemotherapy in the valley of Marques, snail

control in the valley of Cul-de-Sac, and an improved water supply in the valley of Richefond. The article is an account of the last programme.

Between 1970 and 1972, water supply systems were constructed in five communities with free house connections and special provisions for the more dispersed population.

Two health education campaigns accompanied the construction programme. The first campaign was directed at four schools, and consisted of a teachers' training course at three schools, using films and discussions, and bi-weekly health education classes, on four water related diseases, planned by the project's health educator. Two booklets were developed. Two evaluations took place, an intermediate one after 6 months and a final one after 2 years. Written, or oral, tests were used for six age groups (5-14) years) in three of the participating schools and three control schools. A significant improvement was found for the younger students (5-9 years) only; this improvement was found to be related to the use of oral tests instead of questionnaires written in English.

The community programme was preceded by a two-week study on the frequency of river-water contacts, opinions, beliefs and acceptance or rejection of new practices, the need for additional facilities and their siting. The information was collected through home interviews with 70 per cent of the families by the social anthropologist of the project by means of open-ended questionnaires. Reasons for the continued use of river water reported by 41 per cent of the respondents were the prohibitive costs of installing private showers and baths, breakdown of the system, the installation of self-closing taps which increased collection time and efforts and the loss of a social meeting place. The construction of laundry and bathing facilities was requested, and suggestions were made for their situation, while in some communities swimming pools were also constructed. The health education campaign consisted of monthly filmshows, informal discussions and support of the community leaders, and posters on wearing gumboots, handwashing and latrine use. The use of gumboots was limited by problems of price and supply. Evaluation of the programme was by observation of the use of the facilities and the frequency of contacts with river water at a great number of observation points including a control area, before and after the construction of the facilities, as well as by the stool examinations. Both types of data showed a great improvement, with a drop in river water contacts of 99 per cent. The remaining infection route, the fording of the rivers during the harvest season, did not deduct significantly from these results. Only in exceptional cases did the villagers return to using river water.

KW: evaluation, health education, implementation, media and methods, planning, preventive health.

20. CHANDRA, P.
(Dep. of Sociology, Jabalpur University, Jabalpur, India)

Communication of some new ideas in a Madhya Pradesh village:
a sociology study conducted in a mixed village, *Eastern
Anthropologist*, 17, 3, (1964), pp. 183-214.

DA: 1961-1963

CO: India

AN: A qualitative and quantitative study was carried out on the extent to which ten innovations were accepted and assimilated by the tribal Gonds and the non-tribal Hindus in a selected village, Natwara, in Jabalpur district, India; and on the extent to which the rural social structures, values and norms offered resistance to them. The innovations were 7 articles of personal use, education, scientific treatment of disease, family planning, smokeless stoves, filtered water, sanitary latrines, decimal coinage, metric system, and awareness of four socio-political ideas.

After a description of the geographical, socio-economical and cultural setting of the village, adoption of the various innovations is discussed. The author describes the continued superstitions and beliefs that evil spirits are the causes of disease, e.g. the goddess Kali or Durga as the one responsible for smallpox, plague and cholera. This has led to strict rites to ward off evil and to the 'magical' treatment of disease by witch doctors. The author witnessed one such treatment of a malaria case. Use of modern medicines and clinics is discussed.

Smokeless stoves had been introduced into the village as a community development project. The first five stoves were given free of charge as a demonstration project. At the time of the study there were 14 families in the village with smokeless stoves, 10 in the higher castes, one in an occupational caste and three in the untouchable castes. Only three stoves were found to be used, all by the higher castes. The reasons given for rejection by the women were, that they were unsuitable for traditional cooking methods and produced tasteless food, particularly in bread and milk. The men stated that the stoves interfered with their waterpipe smoking habits, for which they used the cow dung from the traditional stoves. Ten families were said to have been willing to try the stoves, but were kept from doing so by their cost. Untouchables and tribal Gonds reported that no one had ever cared to show them the method for operation.

Two reservoirs for filtered water and several village taps

had been provided by the authorities, because the water supply conditions were very poor. Washing and bathing took place in the village pond and drinking water (as well as additional water for bathing and washing of clothes and utensils) was drawn from 25 village wells. 80 per cent of the population used uncovered pucca (brick-lined) wells and 20 per cent used kutchra (mud-lined) wells originally intended for irrigation only. The village tank was in a neglected condition, although the village Sarpanch (=elected village leader) reported that it was cleaned twice a year, while wells were disinfected 3 to 4 times a year. Initial acceptance of the new supply was high, but problems arose with regard to the sharing of filtration costs, since those who lived further away wanted to pay less. The village council, responsible for fixing the watercharges, had not met for over three years due to factionalism caused by intercaste rivalries, so that the Sarpanch felt it advisable not to disturb the peace of the village by calling a meeting.

Another community development project was the construction and use of sanitary latrines. Only the very well-to-do had old-style latrines, the rest of the population used the open field while children used the village streets, which lacked drains. Cleaning, done by three families, was insufficient. Acceptance of modern latrines was only 10 per cent, with the study showing that 40 per cent, 15 per cent, 50 per cent and 50 per cent of the four highest castes refused them because they could afford to hire the service of a sweeper, as befitted their position. 10 per cent of the occupational and untouchable castes expressed their willingness but said that high costs, non-availability of materials and shortage of masons were a restraint. The remaining non-tribal families thought that going to the open fields was more hygienic. The Gonds were apparently not approached by the authorities and were nearly all ignorant of these latrines.

KW: adoption of innovations, beliefs, constraints, environmental sanitation, evaluation, practices, social structure.

21. CHEN, P.C.Y.
(Department of Social and Preventive Medicine, University of Malaysia)

The method of disposal of human excreta used by 177 rural Malay households, *the Medical Journal of Malaya*, 23, 3, (1969), pp. 159-168

DA: -

CO: Malaysia

AN: A survey was carried out in four rural villages in the state of Kedah, Malaya, to determine whether adoption of the waterseal latrine, promoted by public health overseers and other rural health workers of the Rural Health Plan, was associated with a position of prestige in the community.

Data were collected through direct observations of latrines used, interviews with local leaders and public health workers, structured interviews with all Malay housewives in the four villages, and records of the public health overseer.

Methods of excreta disposal used were divided into insanitary (bush and overhung latrine) and sanitary (pit and waterseal latrine). The former methods were used by 33 per cent and 1 per cent of the villagers respectively, the latter by 48 per cent and 18 per cent. The use of insanitary methods was positively related to the distance to the health subcentre. The village farthest from it had no latrines at all.

In the two villages where waterseal latrines had been adopted (by 32 of the 97 households), the relationship was studied between adoption and household characteristics. Highly significant positive relationships were found with possession of a building plot, radio and mean size of farm land, while schooling and high official village position of the head of the household, and presence of the grandparents were also positively related to adoption. No significant relationship was found with age and government employment of the head of the household, schooling and age of his wife, mean size of household, possession of a bicycle and modal class of income.

The author concludes that the household characteristics, significantly related to adoption of waterseal latrines, are all important indications of high prestige in a rural Malay community, and advises public health personnel to approach the respected leaders of the community for a two-step adoption process.

KW: adoption of innovations, evaluation, excreta disposal, extension.

22. CLINARD, M.B.
(University of Wisconsin)

Slums and community development: experiments in self-help,
The Free Press/Collier-McMillan, New York/London, (1966),
395 p.

DA: 1958-1965
CO: India

AN: Slum life in western and non-western societies is described as a subculture with a set of norms and values which are reflected in poor sanitation and health practices and in deviant behaviour, apathy, social isolation and a sense of powerlessness. The historical development of slums and a comparative typology of contemporary slums in various parts of the world are given, with special attention paid to the Indian slum.

An analytical model is used to examine the process of social change in slum areas, stressing a group and indigenous leadership approach, the legitimization of power, the idea of self-help and a change in identity through emphasis on prestige and respectability.

An extensive case study is included of the Delhi Pilot Project covering a great number of area self-help projects in - among other matters - environmental sanitation and preventive health.

The self-help projects were initiated by government agents in pre-identified homogeneous areas of between 250 and 400 families. These agents carried out an area survey, drawing a map and making observations. They made house-to-house visits for open ended joint interviews with all male and female heads of households, based on six key questions on felt problems and leadership identification.

In neighbourhood meetings executive zone councils were elected, with women auxiliaries, and later female members, and a model constitution was adopted. These councils elected citizen development councils, which were consolidated into large neighbourhood councils. By this grass roots approach, competition for power was largely avoided and representation of minorities was ensured by giving them their own zones. A great number of less affluent people were given practical leadership training.

A shortcut was sometimes taken by interviewing a 10 per cent sample, after a mass campaign had been held with film-shows and pamphlets to communicate the idea of self-help and to identify potential leaders, who were then involved in additional house visits.

Health and environmental sanitation were found to have the second highest priority (26 per cent) in 21 zones, and accounted for the second highest number of actual self-help activities (23 per cent of the 1346 projects) in 31 zones. This included the construction and repair of latrines, sometimes adapted to the use by children; the construction of public standposts, drains and enclosed taps and showers for personal hygiene, public dustbins, sweeper and waste disposal supervision, clean-up campaigns and the construction of concrete water tap platforms. Each zone council appointed a small sanitation committee to organize these activities. Nuisance from flies proved to be a useful entry point for further sanitation

activities. The women's zone councils were responsible for the organization of women's health classes, in addition to several other preventive health projects.

Participation in committees, a two-days' training camp and three training sessions, in which women from various areas could meet, did much to change their status, especially that of Muslim women.

The perceived impact of the programmes on environmental sanitation conditions was evaluated by interviews with a 5 per cent sample of the male family heads from 31 zones (406 respondents), a random sample of 77 women residents, all elected female community leaders in six zones (72 respondents) and the community organizers.

Of the heads of the families, 35 per cent saw an improvement, 45 per cent saw no change, 3 per cent a deterioration and 18 per cent could not say. The males in older projects, women, elected representatives and extension workers were more positive (56, 61, 68 and 83 per cent respectively).

Only 8 per cent of the men, two thirds of the women and their leaders, and 37 per cent of the community organizers thought that the condition of choked drains had improved. Indiscriminate defecation had decreased according to 4 per cent of the heads of households, 6 per cent of the women, 58 per cent of the representatives and 60 per cent of the community organizers. Similar observations were made on urinating practices. It is suggested that a lack of accurate judgement of the male heads of the households and a greater consciousness of environmental sanitation conditions, as a result of the programmes, account for these differences in perception.

KW: environmental sanitation, evaluation, felt needs, leadership, organizational structure, training.

23. REPUBLIC OF COLUMBIA

Programa nacional de saneamiento basico rural (National programme of basic rural sanitation), Republic of Columbia, Instituto Nacional Para Programas Especiales de Salud, Division de Saneamiento Basico Rural, n.d., 18 p.

DA: 1964-1974

CO: Columbia

AN: A description, including three organigrams, is given of the institutional structure of the National Institute of Special Health Programmes (INPES) and its subdivisions responsible for the national rural sanitation programmes.

A survey of the water supply and sanitation conditions in rural areas revealed that, at the end of 1974, 42 per cent of the 8 million people living in rural communities of between 50 and 2500 inhabitants were served by a piped supply and 10 per cent by a waste disposal system. Of the dispersed population, estimated at 6 million, c. 15 per cent had waste disposal facilities and 25 to 30 per cent a safe water supply.

The basic rural sanitation programme was established in 1964, with a decentralization of the rural programme in 1968. This programme has four sub-programmes; a water supply programme, a waste disposal programme, a school water and sanitation programme and, in coordination with the Departmental Health Service, a latrine building programme for dispersed populations. Supply programmes are carried out by four sections of the basic rural sanitation division, namely the programming and evaluation office, the study and construction section, the supervision and technical assistance sector, and the promotion section.

The promotion section is responsible for the motivation and organization of the community, through contact with local authorities, meetings with leaders of community organizations, home visits and leader visits, meetings with village authorities, members of the village development committee and local leaders, meetings with local teachers, neighbourhood meetings, organization of a Communal Action Committee, labour group formation, and signing of the contract for construction and financing between agency and community.

Selection criteria applied for the allocation of systems, are: availability and characteristics of supply sources; community felt needs, interests and collaboration; number of inhabitants served in relation to the population increase; existence of other local or regional development projects; presence of community capabilities, such as experience of the Communal Action Committee, time availability of the community, and organizational capacities (cooperations, associations, etc.); accessibility; degree of population concentration; and existence of available resources in the community or otherwise.

The systems are financed through a revolving fund to which the community contributes by refunding 40 to 60 per cent of the construction costs over a period of 10 to 15 years, with a yearly interest of 6 per cent.

Community contributions in labour and local materials during the construction period are estimated at 15 to 20 per cent. The monthly rates are fixed by the agency in agreement with the users and depend on the socio-economic conditions in the community. Part of the rates is used for financing operation, maintenance and administration, the other part goes to the revolving fund.

The administration, operation, maintenance and extension of

the system are the responsibility of an autonomous Administrative Committee, composed of a representative of the Executive Committee of the Communal Action Committee, and a user's group representative. They are both elected by a general assembly of users, and serve as president and treasurer, while the secretary is a representative of the agency, selected by the chief engineer.

The various socio-economic impacts which the programme may have are discussed theoretically.

KW: administration, economic impacts, extension, financing, implementation, operation and maintenance, organizational structure, selection criteria, social impacts.

see also: MORA RAMIREZ and LOPEZ OROZCO (1976), and WHO/IRC (1978)

24. COURTEJOIE, J.; ROTSART DE HERTAING, I.; NZUGU, C.
(Health Education Centre, Kangu-Mayumbe, Zaire)

Helminthiasis: creating awareness of the problem among young people, supplement to *International Journal of Health Education*, 21, 2, (1978), suppl. 1-5.

DA: 1970-1976

CO: Zaire

AN: A health education stand on the symptoms, diagnosis, treatment and prevention of intestinal helminthiasis, was arranged at the National Kinshasa Fair in 1970. A simple questionnaire answered by 1.620 visitors of the stand showed a high reported incidence of worms (87 per cent) and a high awareness of this problem

However, only 13 per cent of the interviewed linked worm infection with a lack of hygiene, a deficient diet and a poor water supply, while 23 per cent showed complete ignorance. Preventive or curative action had been taken by 54 per cent of the respondents in the preceding 18 months, while 33 per cent were not interested.

In order to improve the levels of sanitation knowledge and behaviour, the authors stress the importance of health education, in particular in the schools. An integrated and practical programme is suggested, e.g. linking helminthiasis control with the existing courses in arithmetics and civics, and including observations (dissecting and microscopic examinations) and fieldwork (surveys on village latrine use). Such a school pro-

gramme was carried out in a secondary school near the health education centre, resulting in a drop in worm infections from 94 to 20 per cent after 5 years of educational efforts. The pupils also participated in the construction of latrines and the pre-testing of educational aids (flipboard pictures) on ancylostomiasis, ascariasis and the construction and maintenance of latrines. These aids are now used for further group health education activities.

KW: environmental sanitation, excreta disposal, health education, media and methods.

25. CURTIS, D.

(Development Administration Group, Birmingham University)

Socio-economic studies in phase II of the slow sand filtration project, a practical guide, Birmingham, (January 1977), 49 p.

DA: -

CO: -

AN: A guideline for socio-economic research accompanying the introduction of an intermediate water supply technology, slow sand filters, in developing countries.

In part I, a number of before-and-after field studies have been developed, to identify social constraints and to assess the impact on socio-economic conditions. A general census is recommended on household identification, composition, water provision and indices of socio-economic position, to which some questions on social access to the supplies can be added.

Impact studies have been designed to measure water collection journey time and water consumption, time budgets or the utilization of time gained through an improved supply, health impacts and productivity gains, purposes and volumes of water use and relative geographical and social access.

A second series of baseline studies is used to investigate possible constraints to the adoption of improved supplies in the community, like competition between the old sources and the new one, or maximum acceptable distance (the so-called cut-off study), willingness to pay, perceptions of supply benefits, and water handling in relation to pollution during collection and storage.

A set of procedures for data collection is supplied for every study. Observations and recordings can be carried out by enumerators at water sources and in stratified sample households to assess water use, water journey, time budgets and water handling practices. The census questions and informal interviews with

committee members can provide information on social access, while interviews with community members give an insight into their perceptions of water and water supplies. Village maps, indicating houses and water sources, can help in the estimation of collection times and the identification of areas for cut-off studies. The use of records on service payment, hospital, clinic and attendance is also suggested. A short description of the analysis of the data has been added.

In the second part of the guideline, three surveys including checklists are designed for the assessment of organizational effectiveness at village, regional and national level. The author emphasized the importance of proper organization for water supply and maintenance programmes at the national, district and village development level, and discusses three administrative models (direct administration, self-help, and a compromise model) and five alternatives for community level management. He favours the compromise administrative model, because villages can be stirred into occasional generous contributions of money or labour, which can have a cost-reducing and educational effect, while some disadvantages of self-help are avoided. These disadvantages are the creation of a too heavy demand and political pressures, the uneven distribution due to the over-representation of villages with a rigorous self-help tradition or active politicians and the unlikeliness of the carrying out of routine activities by the villagers alone.

KW: administration, constraints, economic impacts, health impacts, research design, social impacts.

26. CURTIS, D.
(Development Administrative Group, Birmingham University)

The 'social factor' in sanitation programmes, paper contributed to the Conference "Sanitation in Developing Countries Today" OXFAM/Ross Institute of Tropical Hygiene, Oxford, (5-9 July 1977), 14 p.

DA: -

CO: -

AN: When financially sound and technically competent sanitation programmes fail, social and cultural obstacles are blamed, and health education is considered to be the answer to change the ideas and behaviour of the users. The author warns against such a simplistic point of view and argues that the social factors contributing to the success of the programme can be divided into four interacting dimensions. First there are the exotic

factors of the administration, i.e. the authorities will have their own culturally defined values, beliefs, perceptions and attitudes, such as their predispositions of privacy as a value, in particular with regard to sanitation, and their assumptions about the sanitary habits of their clients. Then there are the mundane factors of the administration, such as scientific objectives, costs to authority, administrative convenience, routine operation and maintenance procedures. There are the exotic factors of the users, e.g. the various taboos, of which the author cites three cultural variations, in India, New Guinea and Africa. Finally, he mentions the mundane factors of the users, including costs to households, convenience to householders, and organizational demands of communal facilities.

In planning or evaluating sanitation programmes, all four dimensions should be considered, which may result in the identification of constraints for the users and in specific adaptations to their particular circumstances. An example is given of the use of the four-dimensional analysis in the evaluation of a sanitation system in a low-cost housing scheme in an Indian city. A checklist of questions on all of the four fields mentioned above was used. The importance of community participation is stressed, as a means of arriving at realistic objectives.

KW: attitudes, bibliography, constraints, design, environmental sanitation, evaluation, health education, planning.

27. DERRYBERRY, M.
(Division of Public Health Education, U.S. Public Health Services)

Health Education aspects of sanitation programmes in rural areas and small communities, *World Health Organization*, 10, (1954), pp. 145-154, (English, French summary).

DA: -

CO: -

AN: In large population centres, the sanitarian can affect the environmental changes needed without necessarily gaining the widespread participation or understanding of the people who are to benefit. In villages and rural areas, however, this is not the case, since the people themselves will have to perform many of the actions needed to break the chain of transmission of disease. The sanitarian, to be successful, must therefore apply the sciences of human behaviour in any attempt to carry

out environmental improvements.

Before any educational programme for environmental sanitation can be planned, it is necessary to obtain essential facts about the life of people of the community. Items of information which need to be ascertained include the appreciation of environmental health problems by the community and their perceived urgency, existing information about these problems, their causes and possible solutions, and the usual channels of communication in which the people have confidence. Important meeting places may be the homes, the village bakery, wells, coffee houses, weekly markets, religious festivals and threshing floors. Social visiting and field work patterns may also be important. Other useful channels are the village story reader, village crier, and key persons such as teachers, priests and headmen. Special clubs, associations, religious institutions and voluntary health agencies are mentioned last, because even in societies with a multitude of organizations, large segments of the population are not reached through these channels. Other important elements are identification of the individuals to whom people look for advice, their level of knowledge and interest in action, the social, economic, cultural and religious characteristics of the people, their value systems, customs, beliefs and ways of working that may influence their behaviour; and the availability of resources that can contribute to the education programme, and their present functioning in the community. Existing programmes in school health education, fundamental education, economic development, agricultural extension, rural and vocational education, village self-help and religious education are examples.

Data collection on these topics is not necessarily the task of the sanitarian alone. When the population is involved in the gathering of information a considerable impetus will be given to the educational programme. Participation by the community in the actual planning of the programme is again emphasized. The author advocates the identification, motivation and involvement of titular and natural leaders, of all others with specific functions in the programme and of the target groups for behaviour change. The various solutions by which the sanitary goals can be achieved, their advantages and disadvantages should be presented to the community for a "user's choice". The methods for spreading the information and securing action can be decided on more effectively by the people. An inventory is to be drawn up of informational materials that will be needed, their timing and application. Planning and, if possible, production of these materials should be by the people concerned, e.g. by local artists, writers and printers. The programme should be timed at a moment, when there is the least competition with other interests and actions. Fiestas or carnivals may therefore

be less suitable.

Barriers to successful implementation, should be investigated, such as economic limitations (e.g. shortage of materials) and attitudes towards technicians; and the criteria of progress should be determined. These should not be limited to quantitative ones, e.g. the number of privies built, but measure the extent to which the people accept responsibility for setting their own goals and move towards their realization.

During the operational phase of the educational programme the main tasks of the sanitarian will consist of supervision and process evaluation, the setting of realistic goals, helping to see progress even when these goals are not attained, revising targets and target dates in a way that brings satisfaction rather than discouragement, and correcting misunderstandings and hostile attitudes.

KE: communication channels, environmental sanitation, evaluation, extension, health education, implementation, planning.

28. DOBYNS, H.F.
(Cornell University, Dep. of Sociology/Anthropology)

Thirsty Indians: introduction of wells among people of an arid region, *Human Organization*, 9, (1952), pp. 33-36.

DA: 1915- 1940
CO: USA

AN: Sufficient drinking water has been a vital concern of the Papago Indians, who live in an arid region of North America. Their primary sources of water were from natural ponds in the dry river beds, which were occasionally flooded by summer rains. This required extensive digging in the dry season, or alternatively, the fetching of water from distant mountain springs.

In 1915 the United States Indian Bureau started drilling wells in the reservation, helped by the existing social organization of the tribe. The siting of the wells was decided on by a general consensus between the spokesman of the village and his council. The wells were usually located at several miles from the village because of the villagers' previous experiences with the dangers of water, the opposition to the Indian Bureau and the mistrust of government intentions, and the taking over of water carrying roles from the women by the men, with the introduction of wagon barrels and metal containers. Lack of funds ended the programme temporarily, but it was taken up again in the 1930's by the Civilian Conservation Corps. Some negative experiences led to the full acceptance of the participation of the

the villagers in the planning process, because they knew their needs and area better. A case of village conflict is also described.

KW: leadership, planning

29. DONALDSON, D.
(PAHO/WHO, Washington D.C.)

Rural water supply in Latin America: organizational and financial aspects, *Carnets de l'Enfance*, 34, (1976), pp. 46-55, (English, French, Spanish summary).

DA: 1961-1974

CO: Latin America

AN: Easy access to safe water for rural populations in Latin America has been increased from 7 per cent in 1961 to 26 per cent in 1974. Three types of programmes can be distinguished: 'individual source' programmes (protected springs or wells) for dispersed populations, 'rudimentary aqueduct' programmes (spring/well, storage tank, limited distribution system, e.g. public fountains) for semi-concentrated populations, and "rurban" programmes for rural communities of at least 100 houses (patio-connections) and the immediate surrounding area. At present stress is on the last programmes.

Common elements or "rurban" programmes are that they focus on concentrated instead of dispersed populations, make extensive use of technicians to assist a limited number of professional personnel, and use specified criteria in selecting target communities. These criteria are the largest population, but not over 2000, and the existence of access roads for trucks. The communities must also have expressed interest, put in requests and offered financial assistance for construction and operation of a water supply system. Finally they must be located within a zone of influence of the national or regional development plan, and need no unusual or expensive solution. Further elements are strong and active community participation in development, construction, administration and financing of the local systems, and the establishment of local water boards, elected in a campaign organized and conducted by the community leaders. The boards are responsible for obtaining local cash and labour contributions, organizing and supervising the construction and operating, administering and financing the system.

Total investment between 1961 and 1974 amounted to approximately \$651 million, of which about 82 per cent has come from

national sources. The communities usually pay 20 per cent of the construction costs (in cash, material and labour), 30 per cent is paid by national and state programmes and 50 per cent is a loan from an international agency. Costs of operation and administration are borne by the community. Financing is often in the form of a revolving fund, with community repayments used for the initiation of new water projects. Advantages of such funds are adaptation of repayment schemes to local circumstances (usual rates are 4 to 5 per cent of the minimum monthly salary of the area), acceptance of community financing of social services as a normal procedure by the local population and promotion of effective organization at the local level.

Three areas of administrative responsibilities can be distinguished. The national level provides a financing channel for national counterpart funds, international loans, national grants and local contributions, develops technical and administrative norms and policies, conducts long-range planning, supervises the execution of the national plan, supervises regional programmes, coordinates construction efforts, exercises overall financial control, provides technical and administrative assistance and provides training. The regional level supervises programme execution, makes designs, supervises construction, operation and administration, and undertakes community promotion. The local level is in charge of administration, operation, maintenance and collection of water rates.

In order to increase output, individual systems should be treated as part of a larger framework, using a mass systems - or package approach to construct, operate and administer hundreds of systems. This approach means that a rural programme is broken down into its various elements such as promotion, technical design, financing, etc., and a model is developed. The technical design is based on maps or aerial photos and standardized design criteria, using pre-designed elements and standardized equipment lists. The materials are assembled in a central yard and sent to the community as a package along with all the necessary tools and items not readily available locally. Professional staff train and supervise volunteer workers at the local level to help stimulate community involvement. These workers carry out developmental and promotional activities according to the coordinated guidelines of the package programme.

At the end of the article 7 areas for additional research are identified, and 5 problems are indicated. These are the sectors responsible: public health, public works or social sectors; development of local level personnel; revision of criteria for long-term planning; financing of programmes in semi-concentrated and dispersed areas; and data collection, bibliography compilation and cooperation with other agencies.

KW: administration, evaluation, financing, planning, research,
selection criteria.

30. DUBE, S.C.
(Department of Anthropology, Osmania University, Hyderabad,
India)

Cultural factors in rural community development, *Journal of
Asian Studies*, 16, (1956), pp. 19-30.

DA: 1953-1956

CO: India

AN: Cultural factors may limit the adoption of new technologies
and behaviour, as illustrated by the experiences in a
Community Development Project in a 153-village development
block in Uttar Pradesh, India.

Innovations introduced included new crops and crop varieties,
adult education classes, environmental sanitation improvements
such as sanitary latrines and wells, stoves, paved village lanes
and compost and refuse pits, cooperative undertakings, such as
community orchards and tractor pools, artificial insemination
and immunization and mother and child care.

Many cultural constraints were observed. Fuel other than cow
dung was incompatible with water pipe smoking and the prepara-
tion of traditional dishes. Well designs were not adapted to
traditional motoric patterns, so that operation was felt to be
more exhausting and waiting times longer. The upper castes assu-
med a supervisory role and exerted pressure on the lower castes
to do the physical work without compensation, as had been the
usual procedure in self-help activities. Women were prevented
by their traditional seclusion from doing any work at all. The
use of refuse and manure pits outside the village was limited
by the labour divisions between the sexes and the value laid
on privacy for women, although the village council had made the
use of these pits obligatory and pollution of the village liable
to fines. There were traditional role perceptions on education,
with a classroom system only considered fit for children. Women
were limited by their daughter-in-law and mother roles, which
tied them to the house. Values of individual or family owner-
ship and management on the one hand, and generosity on the other
(fruit is free for all to take) contributed to the failure of
community orchard projects. There were religious beliefs con-
cerning cattle, preventing artificial insemination, and concer-
ning causes and prevention of disease, affecting the public
health and hygiene programme. The complex social structure
limited a multi-target group approach in planning and implemen-

tation. It caused inequity effects where the higher castes were benefited, and opposition where the lower castes were benefited. Existing attitudes towards change in general, promoters of change, and the actual program could all have a negative effect. Most action programs were characterized by mistrust of government intentions, e.g. taxation. There was little experience in joint planning, and few chances for effecting it were found. Change may be stimulated by stressing prosperity, wellbeing, good name and enhancement of prestige of household members, but the underlying value system may also be a limitation. It may be considered an undermining influence in the case of education for women and the lower strata. Prestigious activities like "chaupals" (male guest houses) and wedding parties may be preferred to community development schemes.

KW: adoption of innovations, constraints, environmental sanitation, evaluation, extension, inequity, target groups.

31. DUBE, S.C.

(Department of Anthropology, University of Saugar, India)

Communication, innovation and planned change in India, in D. Lerner, W. Schramm, eds. Communication and Change in the Developing Countries, East West Centre Press, Honolulu, (1967), pp. 129-167.

DA: 1947-1967

CO: India

AN: For a smoothly working development programme the author identified communicative links between: the political sector and the bureaucracy; the planner and the political decision maker; the planner and the research agencies; the planner and the units of production; the various government department and agencies; the different levels of administration; the general administration and the technicians; the modernizers and the common people; aid giving and aid receiving countries; and overseas consultants or advisors and their native counterparts.

Problems in these sections and solutions adopted in India are discussed. Serious diagnostic studies of the different types of barriers to communication in different areas of development planning and administration have yet to be made. Communication studies at village level are more common. Two of the four studies described are on the awareness of community development and on the adoption of agriculture, public health and environmental sanitation innovations.

Awareness of community development activities was measured

in four villages. 84 per cent of the inhabitants were aware of two or more out of 16 activities, but only 3 per cent knew about them all. Knowledge about voluntary labour was highest (78 per cent). Programmes were considered to belong to the government. Most people were unable to distinguish between government programmes, joint government and people's programmes and people's programmes.

Knowledge about the preventive health and sanitation innovations (TABC and DPT inoculations, malaria eradication, family planning and latrine construction) in one group of villages was generally high, but adoption of these innovations and three others (smallpox vaccination, balanced diet and ante- and post-natal care) was much lower. Data for malaria eradication compared favourably with data on latrine construction; knowledge of the former varied from 93 to 100 per cent, of the latter from 95 to 68 per cent and 13 to 0 per cent respectively.

The author concluded that the gap between awareness and trial or adoption can be attributed to a number of factors, including a lack of felt needs especially for environmental sanitation innovations. There was a general failure to impress people with the advantages of the innovations in terms of economy, efficiency and ease of mastery, with their feasibility in relation to the villagers' resources and needs, and their cultural compatibility. Often an unfavourable image existed of the source of communications, e.g. due to the characteristics of the extension worker or the general mistrust of government intentions. Other barriers were caused by the language, idiom and style of communication, and by the structural features of the audience, like the existence of certain vested interests. There was an unhappy history of similar innovations in the community. Timing was wrong, e.g. in spraying DDT for malaria eradication shortly before the white-washing of the houses for the Deepavali festival. Finally the absorption capacity of the community was limited.

To improve communication for village development, new channels for communication have been created in India, consisting of a network of extension services, with integrated planning at block level, involving specialists in agriculture, cooperation, animal husbandry, public health, education and rural engineering; local agents of communication such as male and female village helpers, with associations such as youth and women clubs; and decentralized democratic institutions.

There are a number of remaining problems. Interdepartmental rivalries were among them. The extension agents had a dual role; they had to use educative extension methods for long term results and executive methods for quick results, to meet higher level targets. They had had theoretical training in human skills and communication, but had no on-the-job guidance. There was a

lack of adequate supplies and technical support to the field agent, resulting in his loss of status. Role definitions and norms of seclusion hampered the recruitment of village helpers, especially female ones. There was a lack of organizational support and leadership training for voluntary associations. There was no clear understanding on the part of the democratic institutions as to exact division of responsibilities in village development. These institutions traditionally assume mediation or arbitration roles, or seek the control of the administrative machinery. Their members are insufficiently trained, and exact definitions of the role of extension services in the democratic process are lacking.

Finally, the advantages and weaknesses of a number of educational aids (demonstrations, posters, films, radio and traditional media) are discussed. Face-to-face communication is the principle vehicle for the promotion of innovations, with other media playing a secondary role. Adaptation to the cultural frame of reference of the audience is essential. Demonstrations and sound organization for technical guidance and supply should back the oral messages. The people should be actively involved in each phase and with all facets of the programmes. Creative efforts are needed to develop new methods of communication. Bureaucracy, routine and ritualization of approach makes communication sterile.

KW: adoption of innovations, communication channels, constraints, evaluation, media and methods, preventive health, sanitation.

32. DWIVEDI, K.N.; TIWARI, I.C.; MARWAH, S.M.

India: innovations in health education in rural schools, *International Journal of Health Education*, 16, 2, (1973), pp. 100-108.

DA: -

CO: India

AN: Report of a study to measure the impact of a short in-service teachers training course in health education, and the coordination of action between school teachers and sanitary officers.

A quasi-experimental non-equivalent control group design was used to draw a sample of 5 schools from a list of primary schools in a rural development area in India. One school, chosen at random, served as control group, receiving the normal health lessons given in all schools. The teachers of the 4 other schools received 1-week training courses, while in 2 schools

teachers also received active support from a sanitary inspector of the rural health centre.

Health knowledge, attitudes and practices were measured before and after the programme, showing an overall increase in all groups. With respect to the control group, the increases were 34, 23 and 17 per cent respectively; for the teachers training course group 51, 34 and 40 per cent respectively, and for the group with additional sanitary officer's support 87, 57 and 60 per cent respectively.

The differences between the 3 groups were significant.

No measuring over time was reported, however, so that consistency of the changes observed is uncertain.

KW: attitudes, beliefs, communication channels, evaluation, health education, knowledge.

33. FANAMANU, J.; VAIPULU, T.
(Medical Department, Public Health Section)

Working through the community leaders: an experience in Tonga,
International Journal of Health Education, 9, 3, (1966),
pp. 130-137.

DA: ca. 1963-1966

CO: Tonga

AN: An evaluation of a sanitation education pilot project in three rural villages in Tonga, Polynesia, analyzed the factors contributing to its failure in two of the villages and its success in the third. Rather than to impose the environmental sanitation conditions, it was decided to teach the village people to improve sanitation themselves. In the two villages selected first, a preliminary survey was carried out, to identify conditions favouring fly and mosquito breeding, housing conditions and waste disposal methods. Official and non-official leaders were identified (district and town officer, clan heads and male household heads, religious leaders, educated villagers, chiefs and elders) to discuss the survey results and subsequent action. At the request of the men no women were involved in the discussions. Implementation of the adopted action programmes was left to the villagers.

An evaluation, after 4 weeks, showed definite improvements, after 8 weeks a standstill was reached and after one year conditions had returned to their previous state. Analysis of the pilot project and an anthropological study revealed that, due to the high status of the women within the family, their lack of involvement had had a negative impact.

A third pilot project was therefore initiated at Masalamea, with observations on insects, rats, animal waste and excreta disposal. Construction of a village water supply was planned, combining the village with a neighbouring one, where the communal government primary school was situated. Distribution would be by means of a pipeline. The villagers of Masilamea however, rejected the inter-village supply and paid for their own well and pumping device.

A detailed sanitary survey was carried out by public health officials in all village households, on household composition, housing conditions, including the presence of animals, waste disposal methods and the presence of mudholes and other rain-water depressions. Its results were discussed in a meeting with the total village population, including the men's water and agricultural committees and the women's health committee, which was revived and reorganized. Attendance of women was stressed. After a discussion of various solutions, the proposed insect control and excreta disposal measures were accepted by the villagers. Detailed instructions for fly and mosquito control were given. The responsibility for the implementation of the programme was given to the women's health committee, under the guidance of a health inspector. A division of tasks between males, females and children was reached during a village meeting.

The setting of goals and the use of positive and negative formal and informal sanctions was left to the villagers. Some of the measures adopted were payment of initial house connection costs of the water supply from the village funds for families completing latrine construction within 8 weeks; visits from families who had completed the removal of refuse and house repairs within fixed time limits to families who had not done so, the obligation to operate and maintain the flytraps for 2 weeks for families who had not properly performed their task, or whose children or animals had damaged the trap; and rewards in kind and honour for children participating in the cleaning campaign.

Evaluation of progress was through observation of visible achievements by villagers and health staff, with weekly discussions in a general meeting. This created a spirit of competitiveness among the villagers. Health impacts were not discussed, since it was assumed that knowledge about the relationship between environmental sanitation and disease was lacking, and no information on this topic was given to the villagers. Overall evaluation took place after 3 months, when all families had completed latrine construction, and 6 and 12 months, showing general upkeep of excreta disposal and insect control measures. Eighteen more villages have since joined the project.

KW: environmental sanitation evaluation, implementation, leadership, organizational structure, planning.

34. FEACHEM, R. G. et al.
(Ross Institute of Tropical Hygiene)

Water, health and development: and interdisciplinary evaluation,
TriMed Books Ltd., London, (1978), 267 p.

DA: 1975-1977

CO: Lesotho

AN: The first part of the book is a report of an interdisciplinary evaluation of rural water supplies in Lesotho, based on one year of field studies in a lowland and a mountain district. Approximately 12 per cent of the population has access to an improved supply, with 9 per cent using piped water. One third of the supplies are not functioning adequately. The reliability and costs of various systems (gravity supply, motorized pumps, wind pumps, handpumps and rainwater collection) have been studied, and the authors conclude that handpumps are to be preferred because they are cheaper and more suitable for village operation and maintenance. They demand fewer additional facilities (storage, distribution) and supply is therefore less likely to be interrupted.

Community participation in the construction of the supplies was found to be an implicit government policy, but clear specifications of the institutional framework within which self-help activities are to take place are lacking. The problems of community participation are discussed, including those of regular cash and labour contributions, and the time consuming nature of procedures. There is considerable backlog in construction, with 727 villages waiting for supplies for which they have paid deposits. The waiting time for highland villages is 39 months. Villagers tend to overestimate their own contributions, which average 7 per cent of total costs, but are thought to amount to 50 per cent. The payment of initial contributions is an insufficient indicator of felt needs. There is no adequate adapted technical supervision of self-help labour. Political loyalties, intervillage rivalries, and the keyrole of chiefs and headmen can all impede progress. Maintenance provisions are sometimes made on an ad-hoc basis, and a bias against decentralization was found to exist. Community participation is accepted as necessary and useful, with observed cost saving effects of labour from 15 to 30 per cent. However community participation should be by specific invitation only, based on a set of project selection criteria. It should follow clear directions on procedures, including the legal power to enforce initial and continued contributions for a village institution.

Participant observations resulted in a description of the role of two types of village institutions (traditional chief-

tainship and village committees) in rural water supplies, and in six case studies. Democratic, single purpose committees with legal authority will be the best solution. Suggested is a water committee elected by the whole village to construct the supply, and a users' association with a committee elected by subscribers for the subsequent operation, administration and maintenance. For a multi-village system one water committee for the whole supply, or else separate systems for separate villages are advised. The responsibilities and authority of the committee should be recorded in a model constitution in the vernacular and widely distributed in the village. Continued government support should include a one-week training course for village water minders and their assistants (who in view of the labour migration should be women), a two-day training course for office bearers of the committee, regular technical assistance and a yearly check-up of the system and moral support from the District Community Development Officers.

Further qualitative data collected in the field were on household and personal hygiene, traditional health beliefs and development spin-offs. Quantitative data collection through observation at the source and household interviews concerned water collection and use, water quality at various points between collection and consumption, excreta disposal conditions, distribution of water related diseases from health records, and economic impacts, through time budget studies. Supply improvements led to an average collection time-gain in low-land villages of 30 minutes, with over one hour for one-third of these villages. Village perceptions of water quality corresponded with quality test results, with the highest quality for improved supplies, and springs the cleanest of the unimproved supplies. Pollution between collection and consumption was quite frequent, however, especially when storage containers were used, as was the case in 48 per cent of the lowland households. Less than 5 per cent of the mountain villages and 13 per cent of the lowland villages had pit latrines, and these were not used by the children.

No significant difference in water related diseases was found in a comparison between villages with a continuous improved supply, improved supplies with a low and a high degree of intermittent service and villages with no improvements. The impact of an improved supply on productive activities in the particular village economy was found neglectible, as little over 2 hours of a 14 hours, 18 minutes working day was spent on agricultural activities outside the harvest season. The distribution of supplies over the country and access to the individual supplies showed no marked inequities.

Based on the field-study, a general planning outline for a rural water supply policy is developed. Programmes should be

part of an integrated plan for rural development, with the chain of decisions including goals, complementary inputs, local institutions (with a discussion of and choice between traditional authority, a central water authority with delegation to the village level, ownership by private individuals or institutions, a water users' association and communal ownership), technology, village selection, and administration, for which three models (direct administration, self-help and a compromise model) are developed.

KW: administration, attitudes, costs, design, evaluation, maintenance, planning, practices, socio-economic impacts, health impacts, training, women.

35. FELICIANO, G.M.; FLAVIER, J.M.
(Philippine Rural Reconstruction Movement)

Strategy of change in the barrio: a case of rural waste disposal, in D. Lerner, W. Schramm (eds.), *Communication and Change in the Developing Countries*, East West Centre Press, Honolulu, (1967), pp. 279-288.

DA: ca. 1962-1967

CO: The Philippines

AN: A case study on the introduction of water-sealed toilets into a Philippine barrio. Although the use of sanitary toilets has been propagated by government health authorities since the turn of the century, they have not been accepted by the average farmer. Fewer than 37 per cent of all rural homes had some semblance of latrines, while random counts revealed that only 4 per cent had sanitary latrines. Gastro-intestinal diseases are one of the five major causes of death and outbreaks of cholera (El Tor) have made the problem acute.

An investigation by the Philippine Rural Reconstruction Movement (PRRM), using field observations and interviews by researchers living among the farmers, revealed the existence of 4 types of objections against the propagated designs: smell, bad appearance, high constructions costs and danger of falling through. Based on these objections, in five years a new type of low-cost, water-sealed and safe sanitary latrine was designed and tested. It was easy to construct, mainly from local materials (green bamboo, gravel, sand and cement) and used a double mould.

The design was based on the attitudes of the farmers who associated cement with durability, and whose aspiration (as shown in a survey) is to own a concrete house. The similarity

of the latrine to the commercial types and the shaping of the footrests to simulate a jet plane had a special appeal for them.

In order to get this new design adopted, an apparently spontaneous, but in fact carefully arranged procedure was set afoot. It started with the installation of a microscope at the local health centre. After some curiosity had been aroused, a series of stool examinations (taken over one month) was initiated by the barrio councillor examining a sample of his child's stool on *Ascaris* eggs, the biggest and most common helminth. The examinations were accompanied by flannelgraph teaching on the life-cycle of the parasite. A mass meeting was organized by the barrio council, women's association and barrio schoolteacher to announce and explain the findings: 92 per cent positive for all children, which resulted in requests for solutions and the first mention of treatment and prevention possibilities, including the newly designed latrine. A demonstration project (which had already been pre-arranged) was demanded, and public commitments for labour, local materials and donations of cement were made. The demonstrations led to modifications and improvements of the PRRM latrine design by the local people and a council designated deadline for each household to construct a toilet. This was followed by another demonstration, a programme of construction laid out by the people, and a treatment programme for those infected, with several hundred expelled adult worms of the *Ascaris* types placed in a huge, propellor agitated container for health education purposes.

This approach led to an average adoption of sanitary toilets of 65 per cent, with close to 100 per cent adoption in a number of barrios in the later stages of development. The authors stress the importance of integrating the facet of sanitation improvement with action in the other fields of work, education, and self-government.

Essential factors in the dynamics of change process noted by the authors are, that the promoted change must be an improvement over the old system, as well as simple, economical and duplicable. It should be based on practical understanding of the problem (relation health-sanitation) resulting in planning and the implementation of a problem-solving action. One must take into account the people's psychology, culture and way of life, like the "hiya-complex", the fear of losing face when not fulfilling a public commitment. The change should be accepted by persons of authority and respect and be achieved by personal rather than mass media approach, as this is the usual way the farmers deal with each other. It should be worked out as a total approach, relating the problem to income levels, lack of information and need for organization. It should be accompanied by the use of individualized visual aids, like the microscope and flannelgraph demonstration, the live *Ascaris*

exhibits and the toilet building demonstration used in this project.

KW: adoption process, constraints, design, evaluation, excreta disposal, health education, methods and aids.

36. FENWICK, K.W.H.

(Provincial Medical Officer, Central Province, Nyeri, Kenya)

A progress report on the Zaina environmental sanitation scheme, (n.d.), 52 p., 48 tables, 19 app.

DA: 1961-1965

CO: Kenya

NA: A field experiment was carried out to measure the impact of a rural water and sanitation self-help project in Zaina, Kenya, consisting of a modern water supply with farm and school connections, washing and waste disposal facilities in schools, a village storage tank, multiple draw-off points, and an enclosed laundry unit. Health education was given simultaneously with the construction of demonstration aqua-privies and latrines with concrete slabs.

Before and after the implementation of the programme, surveys were conducted in Zaina and a control village based on the socio-economic status, personal health, housing, nutrition and sanitation, complemented by pathological surveys.

Results showed a greater rate of progress in Zaina than in the control area, in health and development - especially dairy farming. It should be noted, however, that the group of landless farmers in Zaina amounted to 30 per cent in 1961, with a survey coverage of 86 per cent, and to 29 per cent in 1965, with a response of less than 70 per cent, while for the control village these data showed 22 per cent in 1961 with a response of 79 per cent and 17 per cent in 1965, with a response of over 90 per cent.

The presence of latrines in Zaina increased from 84 per cent to 96 per cent, with reported use rising from 98 to 99 per cent, while dropping in the control area from 94 to 91 per cent, with reported use also dropping from 99 to 98 per cent. The level of maintenance observed fell sharply in both the experimental and the control village, probably due to a rise in hygienic standards applied by the interviewers.

The author remarks on the lack of enthusiasm for additional projects on latrine, floor and fireplace improvements because of restricted finances, but mentions the building of a women's social hall and the organization of family planning instruction

as by-products of the development scheme.

KW: economic impacts, evaluation, health education, health impacts, progressive development

see also: JAKOBSEN et al. (1971)

37. FEUERSTEIN, M.T.

(Queen Elizabeth College, University of London)

The educative approach in evaluation: an appropriate technology for a rural health programme, *International Journal of Health Education*, 21, 1, (1978), pp. 56-64.

DA: 1976

CO: Honduras

AN: Just as rural health care itself, its evaluation need not always be a highly technical, scientifically rigorous and quantitative study. It can be carried out by the rural people themselves and lead to their own conclusions for future programmes and approaches. Thus, voluntary female health promoters carried out a guided field evaluation of their own 5 years old public health promotion programme in Olancho, Honduras. Apart from its consequences for programme objectives, administration, training, financing and insight into its impact on the community, the evaluation also served an educational goal. This last objective was emphasized by the use of a field approach; stressing personal relationships, and involving the programme leaders, local health workers and many members of the target groups in the evaluation activities. The self-study aspect was also apparent from the use of simple questionnaire analysis techniques, the acceptance of handwritten reports in the local language, and the use of simple reproduction techniques in the distribution of the results and the discussion material. The study was initiated after an explicit demand for evaluation and ownership of all results and reports by the community was emphasized.

A general evaluation plan was developed by the local team in conjunction with the evaluation advisor, covering a general introduction to the evaluation and its methodology; a survey of the country, department and region concerned; the history, progress and present stage of the programme; the results of the questionnaires; the relationships with other development entities; the problems related to communications and the distribution of drugs and the conclusions and plans for the future.

A detailed workplan was then developed, defining the sources for the various types of data, the methods and places of collection, the timing and the delegation of activities to the participants. The plan was discussed by the coordinating team and visiting health promoters, and each member was given a personal folder with a list of specific questions for which they were given responsibility. Some sections, e.g. the two-part questionnaire on the background and activities of the health promoters were universal, others, e.g. on the geographic and socio-cultural context, were completed by one participant.

The methods of data collection used were a two-part questionnaire on the background and activities of the health promoters; a study of selected records and registers, using especially devised forms for patterns of mortality and morbidity, which stressed visual learning rather than statistical facts, and a technical knowledge test applied by the evaluator in private interviews with a sample of the health promoters. Lack of time prevented the design, application and assessment of the test by the participants themselves. There was a study of the c. 50 per cent of the health education talks which had been recorded. Participant observation and critical incident analysis were also used as evaluation methods.

The results of the health studies revealed that mortality and morbidity in the age groups up to 14 years remained high. Nutrition, child care, improved water and sanitation facilities and domestic and personal hygiene were the main topics in health education. The cost of medicines obtained through the programme was much lower than the cost of those bought commercially.

The study of the housewives' clubs, which were the target groups of the health promoters showed that they were both a strength and a weakness of the programme; a strength, because these groups have to be formed first and a woman has to be elected from their midst for training as a health promotor, while the basic stock of drugs and equipment is acquired through self-help activities; a weakness, because 25 per cent of the promoters trained since 1972 are inactive due to club closures.

The study of the promoters revealed among other things that the majority were between 20 and 40 years of age, with an average of 6.2 children and less than 6 years education. Boiling of the family drinking water and burning, or burial, of household refuse was universally reported. 50 per cent drew water for all purposes directly from a river or stream, 25 per cent carried it home themselves, and 50 per cent used children as carriers. Water carrying took place from 5 to 10 times a day over a distance of 15 to 40 minutes to cover. Washing of clothes and utensils in the river, or with river water, was reported by 75 per cent. Forty per cent lived in communities where there were no

latrines, or only unfinished ones, or where latrines were not used.

The joint discussion of the findings resulted in twenty two conclusions, including the need to sharpen programme objectives and establish more concrete goals, to improve record-keeping, e.g. through family treatment cards and community health records, and to organized a course for husbands for greater community understanding and support.

KW: evaluation, implementation, planning, preventive health, primary health care, research design.

38. FRANKEL, R.J.; YOOME, S.
(Asian Institute of Technology, Bangkok)

A contest of spirits: the river versus the "Pra Pa", Unpublished paper, Asian Institute of Technology, Bangkok, Thailand, (n.d.) 6 p.

DA: 1974

CO: Thailand

AN: A descriptive case study of the introduction of a water filtration system in Ban Som village, Thailand. The village was selected for its highly polluted river water as revealed by water quality tests, and for the presence of nine concrete roof catchment tanks. These water storage tanks had been constructed by the Ministry of Public Health with labour and cash contributions from the village, to collect rainwater for a monastery. This was never built, however, due to lack of village funds and the tanks had not been used for 18 months, causing a loss of face for the village leaders.

A water filter using local materials (shredded coconut husks and burnt rice husks, and two large concrete water jars from the local market) was developed by the Asian Institute of Technology, and permission was obtained from the Ministry of Health and the village leaders to incorporate the storage tanks into the project. The plant was constructed by a carpenter-plumber party of three men on contract, with additional labour from the villagers organized by the village headman when necessary. The construction materials and the labour team were paid by the Asian Institute of Technology. The transport and supervision of the construction was provided by the Ministry of Public Health at district level. The village headman was also appointed the operator of the filter unit.

Improved water supplies were perceived by the villagers as expensive in construction, operation and maintenance, while

the taste of the water was not generally liked. Labour contributions were preferred to cash contributions. The effectiveness of waste materials was doubted. Therefore both district officials and village leaders were informed right from the start that no construction costs were to be paid, nor operation costs during the first six months of supply. Misgivings about effective functioning and taste were not counteracted until the trial run of the village system, when visual tests on the cleanliness of the water persuaded the villagers of its high quality (confirmed by laboratory testing).

A date for the opening ceremony of the water system was fixed according to the traditional system of lucky days. An unfortunate accident (the drowning of a village boy in the river when catching fish for the ceremonial offering and meal) endangered the adoption of the system, since it could be seen as proof that the river's spirit had been disturbed. Treating the river water was not interpreted as going against nature, however. None of the villagers wanted to believe that the two incidents were connected and the interpretation of the research assistant was accepted by all.

News of the system spread to other villages (one channel being a training meeting of the Developing Democracy Programme, attended by the village headman) and requests for similar systems were made by four other communities and the District Health Officer. Long-term evaluation will be necessary to determine the effect of the rainy season on the continued use of the supply and check the continued maintenance of the system. No information is given on continued liaison and supervision.

KW: adoption process, attitudes, beliefs, design, implementation, operation, planning, selection criteria.

39. FRASER, T.M.

Directed change in India, Ph.D. thesis Columbia University, 1963, Dissertation Abstracts, 27, 6, (1966), 195 p.

DA: 1958-1960

CO: India

CA: An analysis of a ten year community development project in 44 villages in Western Orissa, India, attempting to bring about changes in agriculture, occupation, health and sanitary aspects of rural life. Ideological conservatism appears to vary directly with the strength of linkages to other subsystems and inversely with techno-environmental urgency for change.

Social organization varies rather widely in its role in change. Joint families tend to be more resistant than nuclear families, while changing patterns of authority facilitate modernization. The upper castes were oriented towards a broader cultural environment, while serving as an elite model for emulation by the lower castes, which makes community development accord more with the formers' values and models. The development maxim, "do not disturb traditional organization", may actually strengthen resistance to desired innovations by reinforcing linkages and ramifications.

KW: diffusion of innovations, environmental sanitation, felt needs, social organization.

see also: PATNAIK, (1961), and
DUBE, (1967)

40. FUNCK, J.C.
(UNICEF, Algiers, Algeria)

L'introduction d'un programme d'eau potable à Belhassenat,
(introducing a drinking water supply to Belhassenat), *Carnets de l'Enfance*, Algeria, 34, (1976), pp. 71-78, (French, English, Spanish summary)

DA: -

CO: Algeria

AN: A rural water supply programme significantly improves the population's health. It can also give a community a new awareness of its possibilities for development.

The government of Algeria, with the help of Unicef, has undertaken a campaign to reduce the infant mortality and morbidity rate in rural areas by providing safe drinking water and improving the level of sanitation.

A series of pilot projects have been launched under varying circumstances, to provide a basis for establishing an effective methodology. The underlying principle is popular participation.

The wells of Belhassenat, one of the pioneer villages chosen, produced only one or two containers of water every 24 hours. Most of the water had to be carried by donkeys in waterskins or jerry-cans from a spring three kilometres away, on the other side of two wadis where there is a constant danger of sudden floods in winter.

An investigation of the spring water by the health department proved it to be pure and abundant. It was agreed, through discussions with the village leaders, that the government would provide pipes, pumps and other materials needed, while the villagers would dig the trench for the pipes and ensure the water's protection from pollution by removing dunghills and rubbish heaps. Initial scepticism of the villagers disappeared after a technical survey to design the piped supply had been conducted. Within two months the water system was installed. During the construction of a collection basin at the source, an eel was discovered in the water. The villagers believed that the eel improved water quality by "eating the herbs and tiny animals to keep the water pure". No problems about removal of the fish were reported. A reservoir was then built, and the project was extended to include two outlying groups of houses, with the improvement of existing wells, construction of another groundwater scheme and the building of washhouses and drinking troughs.

Attempts to install house connections had to be stopped since water was considered a communal good in the village. A private sewer, constructed by one of the villagers over the water pipes, had to be relocated when noticed by the construction team leader.

Access to an adequate water supply quickly stimulated a series of local initiatives, such as the construction of public showers and latrines, a washhouse for which the village chief offered part of his garden, and a school. Requests for electricity and a paved road have also been presented to local government and the improved living conditions have begun to attract some people who had emigrated back to the village. No maintenance arrangements have been reported.

The departure of the intervention team to another area met with resistance from the village. The project was not considered completed and the team's help was wanted for borrowing a tractor from the cooperative and construction of a school canteen.

Not all pilot projects were as successful as the one at Belhassenat. In one project the pump was damaged in an internal village conflict. In another, trenches for the pipes were not dug because the population expected this work to be done by municipal labourers. (Extended journal abstract)

KW: beliefs, construction, evaluation, planning, progressive development.

41. GOYDER, C.

Sanitation in the health and social development projects supported by Oxfam, paper presented at the Conference "Sanitation in Developing Countries Today", OXFAM/Ross Institute of Tropical Hygiene, Oxford, (5-9 July 1977).

DA: -

CO: Bangladesh, Brazil, Dominica, Ethiopia, India, Malawi, Pakistan, Somalia, Vietnam, Zaire.

AN: An overview is given of a number of Oxfam sanitation projects in developing countries, covering programmes in;

- (1) rural areas of Zaire, Brazil, Somalia, India and Malawi;
- (2) institutions in Ethiopia, Zaire, Dominica, Vietnam and Malawi;

- (3) urban slum areas in Pakistan, Brazil, India and Bangladesh;
- (4) disaster programmes in Ethiopia, India and Bangladesh.

A critical review of some of the programmes emphasizes the need for integration of extension and construction activities. Some of the programmes discussed were limited to the provision of health education, covering sanitation and hygiene, nutrition and in some cases also family planning. One project consisted of educational mimeshows in six villages.

Contrary to this approach, a rural hospital in Maharashtra, India, combined health educational activities at the hospital with extension work in the villages by a mobile team, supporting sanitation and water supply self-help projects in selected villages. The Vanga Hospital in Zaire trains village auxiliaries for motivational and educational work in selected villages, supervised by mobile teams which contact village elders, organizes public meetings and massive latrine digging, and carries out yearly inspection on maintenance accompanied by local stool tests and treatment for worms and intestinal parasites. Training courses for auxiliaries from other hospitals failed, however, due to lack of encouragement from superiors. This problem was solved by organizing seminars for senior medical staff. Present needs are decentralization of supervision and development of training guides in local languages.

Incentives discussed are the provision of plots for settlement of nomads in Somalia, on condition that they build good latrines, and the establishment of revolving funds for local development in Kerala, India and Brazil. The revolving fund system in Kerala was part of an integrated development project consisting of a fish cooperative, adult literacy classes for women, a mother and child clinic and sanitation education, culminating in a latrine construction programme.

A latrine construction project launched by two Peace Corps volunteers consisted of the rallying of support of the local mayor and village priest, the organization of public meetings for men to discuss the technical aspects of installation and maintenance, and for women on the relation between sanitation and preventive health, followed by home visits, film shows, and the collection of small weekly contributions towards the latrine fund. Pits were dug and lined by groups of families. Building materials and transport were provided by the mayor and the construction was completed by a mason.

In slum and low cost housing projects, an important question was the construction of communal latrines. The author states that early involvement of the people in the planning and implementation of a project may result in better acceptance and use of communal facilities, e.g. by guarding privacy, offering plenty of water taps, providing other facilities such as a public health education and other meetings and a community laundry, and by letting families choose their latrine sharing neighbours.

KW: financing, excreta disposal, health education, media and methods, primary health care, progressive development,

42. GUMPERZ, J.J.
(University of California, Berkely)

Religion and social communication in a village in North India
Journal of Asian Studies, 23, (1964), pp. 89-97.

DA: ca. 1962-1964
CO: India

AN: During a year and a half an anthropological case study was carried out, to investigate the local communication network in Khalapur, Northern India. Although possibilities for outside contacts had greatly improved, caste and kinship restrictions limited social interaction. Free discussion and interchange of opinion were most likely to occur in small groups or social nuclei. These nuclei consisted of men of one or more joint agricultural families, who jointly owned and operated a farm, business or company, and who might be of different castes but with roughly similar positions in the hierarchy. No public assembly hall, or square, accessible to all was found to be used; meetings took place in the private men's houses (chopal), cattle compounds or workshops. Development officers worked from a selected family chopal, and information was gathered through

enquiries from members of the social nucleus of their host who could also invite other villagers to his chopal.

This network of small informal groups depending on person-to-person oral channels limited the periodic distribution of printed materials such as literature, pamphlets, library books and posters to the various nuclei for a mass approach. Thus the diffusion of innovations was influenced by the nature of the message source, and its position in the social hierarchy, if this source is human, the nucleus or nuclei through which it was channelled into the village and their relative status, and the number of intergroup friendship ties of the mediating nuclei.

One way to overcome these limitations on the communication of new ideas was the use of religious performances, by drama groups acting out mythological themes interspersed with songs and music, or by religious lecturers, reading or reciting traditional texts alternated with songs. These performances were held on invitation by a particular family, but in a public place and were attended by members of all castes.

A variety of non-religious messages was also transmitted successfully, provided they were connected to the ancient ones.

If messages were too modern both in form and in content they were found to have a negative effect.

An example of the diffusion of modern ideas through such a traditional channel was the by the Community Developing Block. He used Bhajan music for songs about public health and agricultural innovation. His audiences were from all castes, as were the trainees accompanying him. If he had been a village development worker, his low caste would have been a serious constraint.

KW: adoption of innovations, communication channels, social structure, traditional media and methods.

43. GUZMAN, I. de
(Department of Health, The Philippines)

Health educational aspects of community development including community organization in The Philippines, in H. Katsunuma, N. Maruchi, M. Togo (eds.), Health Aspects of Community Development in South East Asia, South East Asian Medical Information Centre, Tokyo, (1977), pp. 247-252.

DA: -

CO: The Philippines

AN: Existing problems in health knowledge, attitudes and practices in The Philippines can be attributed to socio-cultural factors, a lack of understanding of and support for public health programmes, communication barriers due to language and literacy problems, the indifference of health workers to educational tasks due a lack of knowledge and skills in communication, demographic and topographic problems, and the low economic status of the population.

The authour discusses the administrative structure of the health education services at national and local levels, the training of health education specialists and other workers in health education, and the use of voluntary village health workers. A short description is then given of a successful sanitation education programme for the construction of water sealed latrines in a rural community.

The project was initiated by the municipal health officer calling a meeting of local government authorities and voluntary agencies. He presented statistics on local health problems and made some recommendations for action. Planning meetings were held with the Community Development Council and community organizations. The necessity for a waste disposal campaign in the locality was emphasized by an outbreak of cholera El Tor.

A pilot project was decided on in a nearby village, which was selected because of the high incidence of gastro-intestinal diseases, the presence of a good piped water supply, and the cooperativeness of villagers.

A survey of the population and sanitary conditions was held, revealing that one third of the 245 families had no toilet facilities.

Information on the necessity of a sanitation campaign was given to the 14 villages captains, who were encouraged to formulate their own plans. School teachers and the village priest were involved in the diffusion of information on the campaign and its objectives. The demonstration of the construction of water sealed bowls and the supervision of subsequent construction was carried out by the sanitary inspector. Cement was bought from the revolving fund of the Community Development Council, while the villagers provided sand and labour.

After the total coverage of the pilot village the project was repeated in the other nuclei of the community (17,000 inhabitants). It was extended to include the improvement of water supplies (spring development and the drilling of 5 artesian wells), construction of blind drainage, fencing of houses and beautification of the barrios.

KW: administration, excreta disposal, health education, implementation, planning, research.

44. HALL, B.L.

(Institute of Adult Studies, University of Dar es Salaam)

Revolution in rural education: health education in Tanzania,
Communication Development Journal, 9,2, (1974), pp. 133-139.

DA: 1972-1973

CO: Tanzania

AN: A description of the organization of a preventive health education programme in Tanzania with a combined mass media and interpersonal channels approach. After the exploration and testing of this approach in two pilot studies and one large-scale campaign on political education, in 1969, 1970 and 1971 respectively, the Institute of Adult Studies at the University of Dar es Salaam and the Tanzanian Government implemented a large-scale health education campaign.

The campaign had a double objective. The first was the improvement of public health conditions through the generation of general awareness of preventive health, specific knowledge about malaria, hookworm, dysentery, bilharzia, tuberculosis and water; individual health behaviour, and public health group action. Secondly it encouraged the maintenance of newly acquired reading skills by the participants in a recent national literacy campaign through the provision of free reading matter in simple language and large print.

The target group consisted of the population of Ujamaa villages, because of their greater infection-risk, and of the inhabitants of the literacy campaign districts, totalling about 1 million adults.

The radio-broadcasts were preceded by an intensive publicity campaign, including radio-announcements, publicity programmes, magazine advertisements, a special supplement to 2 national newspapers, posters, 2 national speeches by the prime minister and 3 special cotton material prints.

The campaign was organized by a national coordination committee, consisting of officials from the Institute of Adult Education, the Health Education Unit of the Ministry of Health and Social Welfare, the Directorate of Adult Education of the Ministry of National Education, the National Political Party TANU and the Rural Development Division of the Prime Minister's Office. The venues were from once a month to once a week over a period of 18 months prior to the first broadcast. The central part of the programme consisted of a series of 12 weekly half-hour radio broadcasts. These were repeated twice for timing flexibility in group meetings. They consisted of 10 minutes of music and messages to enable groups to gather and 20 minutes of interviews about, and dramatizations of personal health

experiences. A set of printed materials and study guides was provided to explain and extend the radio messages, with drawings and photographs to suggest topics for group discussion. Trained study group leaders organized the radio broadcast meetings.

Selection procedures for these leaders varied from area to area, from the rarer self-organization of groups and election of one of its members, the use of political party cell leaders (the "Ten-House Leaders") and self-proposed leaders who answered the call from the mass media to organize their own small group, to the more common method of selection by the local adult education coordinators (usually heads of primary schools). The training was conducted in 3 stages: a central training of 7 seminars was organized for regional literacy agents, supplemented by health education officers and other field workers. These teams organized 70 seminars for district training teams, consisting of adult education officers, rural development officers, TANU-officials, district medical officers and people from voluntary agencies. The district training teams in their turn trained over 70.000 study groups leaders in about 2.000 two-day seminars.

Training courses stressed a group dynamics leadership role, not a traditional teaching role, using mock study groups and actual programme material and instruction for action-motivation. A group leader's manual was used, containing elements of the training course and actual programme information, such as times and topics of broadcasts, activities when programmes are not available and places to go to for assistance. Supervision was by the existing adult education officers network, which monitored progress and problems and provided feedback.

The Swedish International Development Agency (SIDA) sponsored the programme (mainly printing costs).

Evaluation studies have been designed on organizational efficiency, knowledge gains and changes in health behaviour.

The author concludes that this type of campaign has several advantages, namely a wide coverage of people who are not reached by either formal education or traditional adult education, the use of an alternative educational approach stressing participation, the flexibility of messages and learning conditions, and the low cost. The combined use of mass media and small group approaches achieved a maximum impact on health knowledge, attitudes and behaviour of the individual. It also added the extra dimension of group health action.

KW: administration, financing, health education, leadership, media and methods, selection, supervision, training.

see also: HALL and DODDS (1974), and
HALL (1978).

45. HALL, B.L.
(International Council for Adult Education)

Mtu ni Afya: Tanzania's health campaign, Clearing House on
Development Communication, Information Bulletin 9, Washington
D.C., (June 1978), 74 p.

DA: 1973
CO: Tanzania

AN: An account is given of the 1973 Tanzanian preventive health
campaign, which used radio forums for health education, a
health action and literacy follow-up.

A survey is given of experiences with forum programmes in
India and Ghana, literacy mass campaigns in Cuba and the Chinese
"mass-line" for health, followed by a description of the study
group campaigns preceding the preventive health campaign in
Tanzania.

Reasons, objectives and planning (which took 16 months) of
the campaign are discussed. Mobilization of public support and
involvement at all levels was obtained by the provision of
information on the campaign and its place within official govern-
ment policy to the staff of the various ministries involved in
several meetings, by one-page information sheets, and to all
MP's, who received a gift set of campaign textbooks. The regular
ministerial circulars to government personnel at all levels
were also used. Local group leaders were recruited by means of
publicity appeals in newspapers and other media. Adult education
coordinators and officials of the national party, TANU, were also
used to recruit group leaders.

The programme itself consisted of twelve weekly study pro-
grammes broadcast over the national radio twice a week, to the
radio study groups at local level, which were convened by the
trained group leaders. Topics covered included malaria (3 times),
waterborne diseases (2), dysentery (2), schistosomiasis (1) and
tuberculosis (2). Supporting material consisted of study guides
(specially adapted to the newly literate), a group leaders'
manual, radio programmes and flip charts.

The 75.000 study group leaders were trained in 3 stages.
First 240 regional officers from various ministries were train-
ed in 7 zones during 3-day seminars, led by three teams of four
tutors each from the Institute of Adult Education and the Depart-
ment of Health Education. Then 70 district seminars were set up

by regional teams to train district adult education officers, rural development officers, TANU officials, district health and medical officers, agricultural extension agents and representatives of voluntary agencies. These seminars also served as distribution points for the campaign textbooks. Finally, 2000 two-day division and ward seminars trained the c. 75.000 actual group leaders and further disseminated the material. The group leaders could have been selected by the members of the prospective groups. In most cases, however, training preceded group formation. Here, leaders could be ten-house cell leaders in the party hierarchy, self-proposed in response to the publicity campaign, or selected by grassroot adult education organizers, like the local headmaster, who is also the local adult education coordinator.

The seminar training covered origins, functions and aims of the campaign, leader recruitment and publicity, study and distribution of campaign materials and leading a meeting, including two mock meetings using taped broadcasts. Counselling, visiting and conducting seminars were added for zonal and district seminars. The absence of formal teacher-student relations was stressed throughout the training. To evaluate any message distortion over the various training stages, a simple set of observation guidelines was developed for one evaluator who attended some seminars at all levels. The campaign was coordinated by a National Coordinating Committee, which used wall-charts on campaign deadlines.

The campaign was successful in that it reached c. two million unschooled rural people, of whom 93 per cent were farmers, and 84 per cent had not more than four years of schooling. The ratio of male and female participants (51 and 49 per cent respectively) was favourable compared with previous campaigns. The average attendance of meetings was 63 per cent, while one fourth of the enrolled participants never turned up. The drop in attendance came after the first meeting. Other problems included absence, breakdown or poor reception of radios in c. half of the cases, misinterpretation of the study group method by using traditional teaching methods, size of the groups, varying from 2 to 200 members, lack of study materials due to uneven regional distribution and lack of communication channels between neighbouring districts, and shortage of tools for the action component, showing the need for increased cooperation between the various ministries, and too fast a pace of speech in the broadcasts.

KW: adoption of innovations, bibliography, constraints, communication media and methods, evaluation, health education, training.

see also: HALL (1974), and
HALL and DODDS (1974).

46. HALL, B.L.; DODDS, T.
(Institute of Development Studies, University of Sussex)

Voices for development: the Tanzanian national radio study campaigns, International Extension College, I.E.C. Broadsheets on Distance Learning, Cambridge, 6, (1974), 51 p.

DA: 1976-1973

CO: Tanzania

AN: A discussion of the development of radio study campaigns in Tanzania, where information broadcast via radio was discussed in small study groups guided by trained local leaders with the aid of study guides and manuals.

Experimental pilot projects by two agencies in the northern and southern part of the country led to two larger radio campaigns, "Uchaguzi ni wako" ("The Choice is Yours", on the Tanzanian elections of 1970) and "Wakati wa Furaha" ("A Time for Rejoicing", on 10th anniversary of their independence).

An analysis of the former included the design of the programme, data collection, an ideal-type of a radio group and significant variations, and an evaluation of the course and its results by means of a survey of 26 selected group leaders. Constraints noticed were among others the mixing of men and women, which caused problems in discussions in 15 per cent of the cases, and too much initiative taken by the leaders due to lack of background of the members - 12 per cent.

A report of the latter campaign includes the set-up of the study, objectives and evaluation design, costs and results. The authors conclude that the intended audience, the rural population, was reached by the programme, as 72 per cent of the approximately 20.000 members were farmers, as well as 40 per cent of the group leaders. Attendance of women (38 per cent, men 62 per cent) was less than at the adult education courses of the Ministry of Education (66 per cent versus 33 per cent). Only 17 per cent of the leaders had had more than 7 years formal education. Pre- and post-knowledge tests of 50 groups showed a significant knowledge gain of 11 per cent. The most expensive items of the campaign were posters, (40 per cent of total budget) which were of negligible value, however, as most of the recruitment was done orally by the organizers of the programmes and adult education officers of various government agencies.

The effectiveness of the two-stage training programme (in service training for educational officers who in turn trained local leaders) was high.

In 1973 a national mass campaign, "Mtu ni Afya", ("Man is Health"), was organized, reaching about 2 million people. Apart from providing information on health and preventive health behaviour, and reading material for new literates, it encouraged group and individual preventive health action.

Evaluation of the programme consisted of interim evaluation tours and visits by supervisors to 2131 groups, a before and after survey on health knowledge, and a study on 11 health practices in 8 villages. Among the action's results reported by the supervisors were the removal of close vegetation and clearing round the house (28 per cent), digging, repairing and rebuilding of latrines (20 per cent), boiling of filtering water (12 per cent), cleaning areas around water sources (11 per cent), digging rubbish pits (4 per cent), digging wells (3 per cent) and avoiding group use of drinking containers and cigarettes (3 per cent). Knowledge gains were measured through a 13-item multiple choice test set orally by the group leaders at the beginning and at the end of the course. It showed a significant difference of 20 per cent. Control groups showed a gain of 15 per cent. As no complete isolation was possible, the campaign affected them as well. When the most energetic control groups, which led studied materials on their own, were removed, there was a significant difference between experimental and control group of 11 per cent. There was also a significant difference between health knowledge of Ujamaa and other villages but with a large range.

The before and after survey of 11 observable environmental sanitation conditions and practices of 2084 inhabitants of 8 villages (presence of use of latrines, pools of stagnant water etc.), showed a 15 per cent improvement, from a mean score of 3 to 4.5 positive practices, with the greatest change in the digging of latrines and the removal of vegetation. Long-term effects were not measured however. Problems were the size of the groups, and the even and timely distribution of reading materials. Active participation as measured by supervisors' scores of the proportion of members actually contributing to the discussion was 58 per cent, and could be improved by promoting the formation of smaller groups and a learning instead of a teaching approach. Feedback used largely for administration and evaluation should be institutionalized as a group correspondence course for long-term results. This necessitates an even longer preparation time than the 18 months for this campaign.

KW: constraints, environmental sanitation evaluation, health education, knowledge, media and methods, practices.

see also: HALL (1974 + 1978).

47. HIMA, G.

(Direction de la Promotion Humaine, Ministère du Développement, Niger).

Hydraulique villageoise et investissement humain au Niger,
(Rural water supply and human interest in Niger), *Carnets de l'Enfance*, 34, (1976), pp. 79-88, (English, French, Spanish summary).

DA: 1967-1976

CO: Niger

AN: The Government of Niger has adopted as one of its primary objectives the provision of an accessible and adequate supply of drinking water for its population.

In this country, where the tragic effects of the drought are still visible, there are c. 4000 cement-lined wells for 10.000 villages.

Since 1967 the "Wells through Human Investment" division of the OFEDES (Office for Groundwater) and the Department of "Rural Animation" have been carrying out a project to drill modern cement-lined wells in those areas where the population is prepared to furnish a contribution in money or in labour. In 1974 this programme was extended to nomadic regions.

The task of the Department of "Rural Animation" is essential: because of the relationship it has already established with the villages, it is able to lay the groundwork for the project by identifying the needs of the communities with regard to water quantity (number of sources available, water journey distance, number of cattle watered per day) and water quality (degree of source pollution and water transmitted diseases). The Department evaluates the degree of motivation by means of an enquete and initiates an information campaign on the support expected from the population with specifications of labour and local materials needed. They also organize village labour including youth and women and identify work party leaders. Activities are concentrated in the off-season.

The OFEDES is responsible for the technical aspects determining the location of the wells, and providing the basic material and logistic installation of facilities. It also introduces traditional welldiggers to modern techniques, to enable them to carry out subsequent maintenance.

The water supply programme has led to the creation of related development projects; vegetable gardening and school gardens, nutrition education by female extension agents, construction of water filters with local materials and environmental sanitation education on source pollution and filter use. Motor pumps are considered essential, but low-cost and low-maintenance models have not yet been identified.

Two other projects with a high degree of community participation have been the construction of anti-erosion terraces in Tahoua district and the training of traditional midwives in Maradi district. The population's participation in various development efforts has encouraged the emergence of new forms or organization, such as the well administration committee. Integrated development, with production and marketing cooperatives taking charge of well-digging, remains a future goal. (Extended journal abstract).

KW: administration, extension, maintenance, progressive development

48. HOLMBERG, A.R.

The wells that failed: an attempt to establish a stable water supply in Viru Valley, Peru, in E.H. Spicer, Human Problems in Technological Change: A Casebook, New York, Russell Sage Foundation, (1952), pp. 113-126.

DA: 1947

CO: Peru

AN: An ex-post-facto analysis of the failure of a water supply project in Viru Valley, Peru. After repeated requests the government sent a geological mission to the area to select and mark suitable sites for 6 wells from which a piped supply was planned to the village. A sewerage system and improved irrigation system were included as well. The Transitory Board (the local council) agreed to organize community labour for repairing and widening the access road, building trails, removing rocks and digging ditches. Although the timing of the project (in the slack agricultural season) was good, no voluntary labour was forthcoming and the board went into debt to pay for labour to construct the access road. Lack of interest and hostility from the villagers caused the project to be abandoned.

The author attributed this failure to various background factors, such as the existence of conflicting groups in the village (large versus small landowners, native inhabitants versus strangers) and various factors of political instability.

There was the influence of a magico-religious value system, with water thought to be controlled by supernatural forces, represented by the images of catholic saints, which could be influenced by the observance of religious rites like the celebration of feast days of certain saints.

No use was made of a status system based on wealth and education, but also on the institution of "compadrazco" (being a godfather to as many children as possible) and on serving as a steward of the religious fiesta of the village patron saint.

In a more practical sphere, the omission to consult a certain local farmer, who was an experienced well-digger and knew much about local water conditions, was a factor which contributed to failure. The farmer, whose prestige in the community was high, spoke openly against the project. Then the site for the first well was badly chosen. It did promise an abundant supply and was quite near the village, but it was on the land of a large landowner. The villagers would have preferred it to be on public ground. The appointed Transitory Board had little contact with the population. Although it was the official village authority, its members were neither native-born nor representative of the real leadership in the village. No attempts were to stimulate the interest of the official and non-official leaders and to counteract malicious rumours.

The use of a social scientist for preliminary fieldwork for about one month might have revealed the factors likely to lead to success or failure. More advice seeking from local people, a two-way communication with the public, e.g. during an important religious festival when all were gathered in town, the siting of the first well on neutral land to eliminate suspicion, the involvement of informal leaders besides the Transitory Board and the use of the central institution of the religious fiesta or cult of saints for publicizing and dramatizing scientific technologies, e.g. through religious blessings and processions, might all have contributed to a successful project instead of a failure.

KW: communication channels, evaluation, health beliefs, implementation, manpower, planning, social structure.

49. HOLMES, A.C.

(African Medical and Research Foundation, Kenya)

Health education in developing countries, Thomas Nelson and Sons, London, (1964), 190 p.

DA: -

CO: -

AN: An introduction for public health workers, teachers, community development officers, junior government officers and district administration in designing a health education programme. The problems of health is looked at from the side of the community (human beings and animals, housing, public facilities, climate and other geographical aspects); characteristic diseases (kinds of diseases present, number of people affected, geographical distribution, characteristics of community sections affected, seasonal occurrence, nature, virulence, endemic/epidemic frequencies); and authority (set-up of health authority system, money and staff resources, attitudes to problems of ill-health, policy with regard to priorities). Problems at the human level are that people do not always know causes and effects of diseases, that they suffer from many different kinds of conditions and illnesses, often in combination, frequently caused by customs and habits. It is therefore necessary to change (part of) their life style.

The legal compulsion approach, follow-the-leader approach and didactic approach are rejected by the author in favour of health education. Various teaching methods, including teaching through similarities and associations, two-character plays, celebrities on tape, discussion groups and conferences are discussed, as well as problems in using pictorial and audio-visual aids, such as understandability, audio-visual distraction, local colour, preferences, perspective, speed and timing. The need to pre-test aids is stressed. Other teaching aids discussed are exhibitions, films, filmstrips, mechanical displays and models (page turner, mirror box, reflector box, running light displays), printed materials, manipulated pictures (flannel graph, plastograph and magnetic board), posters, wallcharts and ancillary aids (puppets and games, such as a health version of "snakes and ladders" used in Kenya).

Apart from an increase in health knowledge, beliefs and habits will often need to be changed. In order to help people to change their habits, health education should distinguish between positive, negative and neutral habits. Goals wanted by the people should be established, e.g. taste-oriented rather than health-oriented nutrition, and new wants should be created, e.g. on the basis of prestige or envy.

Planning of a health education programme should be preceded by action from the authorities to give the good example, e.g. by removal of fly breeding places in a fly eradication campaign.

After investigating problems, establishing priorities and paying attention to what people themselves want to be done, a preliminary survey should be conducted to gain knowledge of

resistances and favourable attitudes; differences between individuals, groups and communities in attitudes; level of education, visual understanding and innovativeness; local power structure; opinion leaders; role of the district council; undercurrent rivalries and jealousies; previous health programmes; reactions observed and cooperation received; and distribution of diseases, causes and effects, local conditions. An example of a tuberculosis eradication campaign is given and attention is paid to personal characteristics, training and roles of professional health education workers.

KW: health education, media and methods, planning, training.

50. IMBODEN, N.
(O.E.C.D.)

Planning and design of rural drinking water projects, a research and framework to analyse experiences with rural drinking water schemes, Occasional papers on Experiences in Rural Development, O.E.C.D, Development Centre, Paris, 2, (September 1977), 51 p. 4 ann.

DA: 1977-1979

CO: -

AN: A research design for a comparative process evaluation of c. 30 drinking water projects in developing countries. The aims are to answer relevant policy questions, to develop an analytical framework allowing the identification of the factors most crucial for success, and to make available much of the experience which has hitherto been restricted to individual organizations and agencies at national and international levels.

The methods applied in designing the study were a review of the literature, including reports on rural drinking water projects and sector analysis, to identify the variables contributing to project failure and success and the development of a detailed research framework. First, the purposes of the research project were defined (comparison of projects, testing of hypothesis and guidance for future policy and research) as well as the project selection process (selection criteria, classification and number). Testable hypothesis were drawn up, based on 5 categories of problems (institutional, financial, technological, behavioural and training/educational). Criteria that will be used for the measurement of project success are number of customers served, percentage of supply facilities actually working and nature and extent of the use of the facilities. For

the data collection three questionnaires will be used, on rural water supply policy, and on process information at project and village level.

Selection criteria for the drinking water projects that will be included in the study are that the construction of the supply was completed 3 to 5 years ago and no further financial assistance has been given since then, that the project is representative of rural conditions and rural supplies in general and in that particular country, and that information on the origin of the project and knowledgeable informants for field investigation are available.

The total number of projects that will thus be analysed is c. 30, but phase I will consist of a trial analysis of 5-10 projects in rural Africa to elaborate, test and review the analytical framework. It is to be completed by the end of 1977. The study will then be extended to a larger number of projects in phase II, with a preliminary analysis available at the end of 1978. Classification will be according to the type of scheme, source and settlement pattern, and geographic and climatic distribution.

Separate chapters are devoted to the development of a set of 41 hypotheses based on the 5 categories of water supply project problems identified in the literature survey, and of a number of indicators to test each of the hypotheses which are classified in an order of increased complexity and sensitivity, and for which the reasons for selection and proposed sources of information are given.

Answers to the questionnaire on rural water supply policy will be obtained through a desk review of national plans, WHO publications, water sector studies, and annual reports of water departments.

Verification and complementation will be carried out in the country concerned. For information at project level, the questionnaire will be filled in by the people in charge, with additional interviews of the people at national and regional level and a study of the initial request, files and project reports.

For the information at village level, a canvasser will be hired to collect data through interviews with the village leaders, collective village interviews, direct observations and interviews with agents of the various government services (nurses, agricultural extension workers, teachers, etc.).

The complete questionnaires are included as annexes II, III and IV.

KW: administration, communication channels, design, evaluation, felt needs, financing, health education, manpower, operation and maintenance, organizational structure, planning,

primary health care, problem identification, research design, selection criteria, supervision, training, water attitudes, water quality, water use.

51. ISELY, R.B.; MARTIN, J.F.

(University of North Carolina, Chapel Hill, USA)

The village health committee: starting point for rural development, WHO Chronicle, 31, (1977), pp. 307-315.

DA: 1974-1975

CO: Cameroon

AN: A report on a village health committee project in South Central Cameroon, describing the procedure followed in the creation of the committees and the evaluation of their effectiveness.

To initiate the project, 4 pilot villages were selected. A survey was carried out on health-related knowledge, attitudes and practices among the villagers. Mobile agents were trained for the extended project. They had to carry out a simple survey on socio-economic and health characteristics of the inhabitants. They had to give a description of the general sanitation and infrastructure situation in the village and an analysis of the existing communication patterns through informal discussions. At the same time they had to start the organization of the health committees to keep the villagers from losing heart. The procedure followed was: the organization of meetings with certain local leaders for the selection of a health committee, the definition of priority problems, the presentation of problem information, the setting of staged objectives, the assignment of responsibilities and the establishment of a time schedule. Once the health committee was functioning properly, in accordance with certain criteria given (meetings without reminder, initiation, planning and execution of new projects by the committee, and demands for outside help), the mobile agent was to evaluate the planning and operation activities, to organize information sessions and to develop leadership skills.

Evaluation of the results of the project was conducted by means of an analysis of the resulting activities of the Health Committees in 1974 and 1975. There was a substantial increase in the number of committees (from 11 to 39). The average number of sanitation provisions constructed by each committee remained the same, however, and 17 of the 39 committees did not report during 1975.

Another evaluation method followed was the bacteriological testing of springs. This showed a significantly greater water safety in protected springs.

The catalytic effect of the committees' health activities on other development activities is demonstrated by the subsequent establishment of a cooperative in one of the villages.

Finally, a number of general constraints are mentioned, such as a lack of local leadership due to migration, lack of local influence due to centralization of the administration, and social heterogeneity due to colonial policy. Two types of constraints are mentioned in particular: government-originated constraints and attitudinal constraints (prevention belief, problem identification and prevention methods belief). The latter were incorporated in the KAP pilot surveys, and were found to be negative for part of the population in all 4 villages, but no figures or social characteristics are given. One of the conclusions by the authors, that an appropriate evaluation design should be incorporated into the project from the start, is therefore not surprising.

KW: constraints, evaluation, manpower, planning.

52. JAKOBSEN, B.; ASCROFT, J.; PADFIELD, H.
(Institute for Development Studies, Nairobi).

The case for rural water in Kenya, in M.E. Kampe, L.E. Smith, Strategies for Improving Social Welfare, Proceedings of a Workshop held at the Institute for Development Studies, University of Nairobi, May 31 - June 3, 1971, I.D.S. University of Nairobi, 4, (1971), pp. 412-450.

DA: 1961-1971

CO: Kenya

AN: An exploratory "ex-post facto" field study was carried out in a high rainfall and high population density area (Zaina), in central Kenya, to determine the major effects of a small scale piped water supply scheme. The scheme had been functioning for ten years. A control area was selected for comparison in the same location, which was matched on all major characteristics except for the water supply. Data were collected by participant observation over a ten week period by the female member of the research team, followed by a survey of a systematic random sample of 173 households. The sample was drawn from the Land Registration Office for registered farmers and from a list of landless villagers in the Chief's camp.

The effects of a piped supply were classified as direct effects of water per se (quantity, quality, accessibility, reliability) and of time release; indirect effects of adoption and expansion of livestock activities, of improvement in animal health and welfare, of improvement of crop husbandry, of improvement in human health and welfare, of improvement in household welfare, of increase in formal and informal social participation and of increase in farm welfare; and negative effects, of non-payment of water fees, of loss of employment for water haulers and of changes in land tenure.

Indicators used to measure the indirect effects were the number of grade livestock, yearly income from dairy milk production, small scale irrigation, membership of voluntary associations, in particular women's groups and more intensive agriculture. No empirical data were collected on public health and informal social participation, but participant observation suggested an improvement in both fields.

Data were analyzed separately for farmers and villagers in both areas, while farmers were subdivided into more and less progressive, the latter subdivision allowing no statistically reliable conclusions however. The data bore out that the two areas were basically similar except for their water supplies. Results indicated that only half of the scheme population benefited from a year-round supply, presumably due to the limited capacity of the supply and the population growth in the area, but the use of neighbours' and communal tanks increased the population benefiting to 4/5ths. Time gains for the functioning part of the scheme were 35 minutes per person per day, with an average of three (mostly female) water-hauling members in each household.

No significant differences were found for adoption and expansion of livestock activities and improvement of farm enterprise but the average yearly income from dairy milk sales of progressive farmers was nearly three times that of the control area. Membership of women's self-help organizations was almost twice as high in the supply area.

In the control area water haulers were employed by 30 per cent of the farmers and 22 per cent of the villagers, while in the supply area these figures were 10 per cent and 0 per cent respectively, suggesting loss of work and a short term negative impact of the scheme. Non-payment of the fixed rates (Ksh 60/year for individual tanks and 20/year for communal tanks) was found to be substantial, with no payment by all villagers and by 25 per cent of the farmers. Payment was made once a year at the chief's camp, but periodical payment of smaller amounts linked to crop sales could improve this situation. Cutting-off of non-payers had started recently. The number of farmers increasing

their holdings to two or more plots was substantially higher in the supply area than in the control area, indicating a tendency of less fortunate farmers to sell up and join the city's job seeking proletariat.

The authors conclude that there is no single outstanding effect of introducing water for human and animal consumption in a high density, high potential area. If production effects are wanted, additional inputs are necessary. When piped water is provided as an isolated input, the chief effect will be on welfare. The introduction of water schemes is one major aspect of a comprehensive development programme. In view of the short term negative impact on paid water hauling, and long term negative impact on less progressive farmers with less water needs who in effect subsidize more progressive farmers with greater water needs, the authors advise the enumeration and classification of beneficiary populations in terms of class indicators by means of survey sampling, in addition to the technical surveys carried out.

KW: economic impacts, evaluation, financing, inequity, research, social impacts, women.

see also: FENWICK (n.d.)

53. KAR, S.B.
(School of Public Health, University of Michigan, Ann Arbor, USA)

A model for persuading resistants for planned change, *International Journal of Health Education*, 12, 3, (1969), pp. 106-117.

DA: 1967

CO: India

AN: A research report on a public health campaign directed to people who offered resistance to smallpox vaccination in a preventive health mass campaign. Reasons for resisting vaccination were identified and persuasion techniques were developed.

Communities with a high proportion of resistance were identified by their below-medium vaccination coverage in previous years. 26 villages, representative on account of their population size, major socio-economic characteristics, exposure to public health efforts and distance from a health centre, were selected. They all had a high proportion of traditional sub-groups, and were rated low on a scale of cooperation in health and development programmes by local administrators and public health workers.

No description of the initial data collection is given, although the author mentions some of the existing needs of the populations and the relatively low priority of health needs, especially preventive health measures. Voluntary adoption of vaccination was approximately 35 per cent, as was rejection, with the remainder neither rejecting nor adopting voluntarily.

The model used to persuade the non-adopters comprised three phases of execution: mass approach, personalized persuasion approach and macro-action. For the first phase the opinion leaders in each village were identified with the "guided reputational method". Participants of a meeting, initiated by the local health workers to discuss a preventive health action, were asked to identify opinion leaders who were respected, reliable and influential. Those suggested had to be representative of the major sub-groups in the community. This was checked after the meeting through small meetings with the various sub-groups at a later stage.

In conjunction with these opinion leaders, a mass campaign was set up with loudspeaker announcements and leaflets circulated by volunteers; a mass meeting, films and discussion, and door-to-door visits. The latter also served to identify individual resistants. Through this campaign another 30-35 per cent of the villagers became adopters, presumably the former undecided.

The personalized persuasion approach consisted of the establishment of a face-to-face relationship ("crossing the threshold"), after which the reasons for refusal were asked. These were found to be mainly beliefs about hidden motives for vaccination, personal insusceptibility, absence of serious consequences, ineffectiveness of vaccination and undesirable side effects, as well as negative interpersonal influences and situational and environmental factors (pregnancy, inauspicious days, etc.). About one third of the initial resisters were persuaded by the provision of relevant information to correct unrealistic expectations about functions of vaccination, e.g. multi-disease immunity, fears of consequences and necessity and timing of re-vaccination. In order to reach the remaining resisters, pragmatization ("to see is to believe") e.g. to counteract fear of side-effects, and emotionalism (fear arousing information to counteract a low perceived threat to self and family, and appeal to parental obligations towards children) were used.

After the subjects had made the decision to adopt, emotional reinforcement was given to solve the post-decision conflict, and after adoption a follow-up was found to be necessary to solve the post-adoption conflict, to counteract rumours, to increase trust in health workers for future action e.g. by symbolic cure of side-effects with aspirins, and to persuade

and vaccinate those not available during the first round.

When 8 to 10 vocal restants in the village had adopted vaccination, macro-action was initiated by using these adopters as additional change agents. This had the double function of providing psychological reassurance for the new converts and a channel for their willingness to persuade others in turn, as well as by using them as a catalytic force in the interpersonal persuasion campaign.

The combined approach led to an overall adoption of small-pox vaccination of 90 per cent against 30 per cent in previous campaigns.

The author stresses the need for further research on this model to test its pragmatic validity.

KW: adoption of innovations, beliefs, evaluation, extension, leadership, manpower, media and methods, practices, preventive health.

54. KAR, S.B.

(School of Public Health, Department of Health Development, University of Michigan)

Communication research in health and family planning programmes in India, *International Journal of Health Education*, 13, 3, (1970), pp. 94-102.

DA: -

CO: India

AN: A review of literature in communication, motivation and action research projects for family planning and public health in India. The author notes the following shortcomings; stress on quantitative evaluation, e.g. number of attendants, film shows or publications, and lack of qualitative and process evaluation; adoption seen as the solitary variable in measuring effectiveness of communication programmes, with little or no attention being paid to additional and environmental variables and neglect of long term effects, i.e. stability of change, and secondary effects of communication. There was too much concentration on positive effects of communication while negative impacts such as misconception about consequences, unrealistic expectations and increased anxieties are also possible, and may need special neutralizing action. The author also notes a lack of investigation of differential impacts on various categories, little study of motivational background for adoption of new health practices, e.g. the absence of positive motives, or the

existence of conflicting motives, and a lack of data of perceived credibility of message sources and channels. Traditional, informal and indigenous communication media are still largely untapped resources.

He therefore stresses the importance of more research into the impact of communication programmed in terms of stability, secondary effects and parallel or alternative informal channels, into the design of communication programmes for motivation and removal of negative forces, (requiring the reversal of the communication process: first interpersonal communications efforts to diagnose barriers, then development of suitable communication appeals for mass media diffusion) and into credible communication sources and channels, with continuous feedback of experiences at the community level.

KW: adoption process, bibliography, communication, evaluation, public health, research.

55. KEBEDE, H.

UNECA, Training and Research Centre for Women, Addis Ababa)

Improving village water supplies in Ethiopia, Case study of the socio-economic implications, United Nations Economic Commission for Africa, ECA/UNICEF Addis Ababa, (1978), 54 p.

DA: 1976

CO: Ethiopia

AN: A report of a study of the socio-economic aspects of 10 selected villages in the Gurage region, Ethiopia involved in a water supply development scheme of the Surface Water Development Unit (SWDU). The objectives of the study were: to find reasons for the lack of self-help and coordination in the highland villages participating in the project as compared with the lowland villages, to collect information on existing economic conditions and possibilities for the more productive use of time saved in water collection, and to stimulate an integrated rural development effort through the cooperation of various government and non-government agencies, and local associations.

A brief preliminary survey was conducted. Discussions were held with peasant associations, staff of the local hospital, EPID (a development agency) and the SWDU, resulting in the construction of a mainly open-ended questionnaire, which was then pre-tested in 50 randomly selected households from the ten villages. The actual sample consisted of 205 randomly selected households, 107 in 5 highland villages and 98 in 5 lowland villages. Both husband and wife were interviewed, and joint inter-

views were found to produce more reliable data in the particular cultural settling. A limited number of opinion surveys were also carried out in households representing extreme and interesting cases or through those volunteering information, as well as with executive members of the peasant associations.

Participatory observation of village life, during the 57 days of field work, provided additional information on norms, values, tradition, husband-wife and parent-child relationships.

Survey data were collected on household composition, migration patterns, literacy, various indicators of farming conditions, division of labour, decision making, responsibilities, water collection practices, perceived water problems, and attitudes toward improvement including perceived benefits, alternative priorities of those opposed to innovations and willingness to participate and cooperate in various ways.

No health data were included, but some data were supplied from a health and nutrition survey, carried out in 1974, which showed serious malnutrition, especially in the lowlands. Perception of health benefits from an improved supply was relatively low, only 3 per cent of the men and 1 per cent of the women in the highlands mentioned this benefit, against 56 per cent and 44 per cent mentioning clean drinking water as the major advantage, while in the lowlands the data showed 13 per cent and 12 per cent for health benefits and 96 per cent and 90 per cent mentioning time saving as the major advantage.

Comparison of the lowland and highland villages showed a relatively more serious agricultural, health and water supply situation in the former, which accounts for their greater "felt need" for improved supplies and greater willingness to contribute labour.

The author concludes that an integrated rural development effort is needed with the cooperation of all government and non-government development agencies and the local associations, to attain a better crop diversification system, through resettlement and land re-distribution in the highlands, ox-drawn ploughs, soil conservation and afforestation and agricultural extension services. A health and adult education programme is to be developed and collective action for development infrastructure (feeder roads, clinics, co-op stores) should be investigated.

Short-term objectives recommended are a well digging and water purification scheme in the lowlands and a spring protection scheme in the highlands, with the training of communal or local maintenance teams, temporary solutions to the most acute problems, like pest control, donkey carts for water

transport, ox-drawn ploughs and oxen on credit to peasant associations, coordination of all agencies and peasant associations in the region, a series of 3 types of economic surveys, and a soil conservation and reafforestation research and action programme.

Long-term objectives mentioned are the development of multi-purpose cooperatives providing agricultural inputs on credit, storage facilities, marketing, credit facilities, a training and community centre for adult education, health education, agricultural extension, assemblies and farmers' and women's seminars for initiating group-oriented programmes, a model farm, and production workshops for artisan training and extended cottage industries.

Strategies advised are a group approach to farmers' and women's organizations, a "family-as-a-unit" approach, a survey of ideas and needs expressed by the people for incorporation in planning, education programmes through assemblies, seminars and discussions with peasant organizations and group organizations, and a built-in evaluation system with quarterly or bi-annual surveys.

KW: attitudes, evaluation, extension , felt needs, integrated rural development, planning, perceived economic and health impacts.

56. KHARE, R.S.

(Department of Anthropology, University of Chicago).

A study of social resistance to sanitation programmes in rural India, *The Eastern Anthropologist*, 7, 2, (1964), pp. 86-94.

DA: 1958-1960

CO: India

AN: This anthropological case study describes the effect of the caste system on the acceptance of nine sanitary measures introduced by officials in Godalpur village, Lucknow, India.

The nine measures attempted were vaccination, village clean-ups, DDT spraying, construction of soak and manure pits, construction of drains, paving of lanes, disinfection of wells and construction of bathing platforms and improved wells.

Religious and caste attitudes played an important role in the lack of adoption of these measures, but the attitudes also served to mask distrust of government intentions, personal conflicts and competition for village leadership. Some innovations were socially acceptable but did not receive enough attention

from government officials, so that personal motives and conflicts could interfere. The rejection of vaccination was based on religious beliefs, and fear of power gaining motives.

Several village clean-ups were not completed because traditional values only permitted voluntary manual labour for the construction of wells, temples, inns, ponds and thatchwork, because caste values of ritual purity and impurity were involved, because it was considered the traditional occupation of the sweepers by the higher castes, and because it was considered a government task by the lower castes.

DDT spraying was more successful, with 90 per cent of the villagers allowing at least one apartment to be sprayed, although it was considered ritually polluting in the pantry, kitchen and worshipping place. This success is attributed to its marginal interference, the visible and quick effects and appropriate timing.

The construction of soak and manure pits was not properly emphasized by the village level workers. It was accepted by the better educated castes, who were imitated by their followers but who tried to impress, upon the lower caste people, that it was not necessary to follow the instructions on siting and construction in detail.

The construction of proper drains was also less emphasized because they were the subject of neighbourhood quarrels about planning and implementation: no drain from a lower caste member was to pass that of a higher caste member.

An action for the paving of village lanes, had been used by one caste to play a trick on another caste which wanted to rise on the social ladder.

An improved well had been constructed successfully and its disinfection caused no problems, although the disinfection of more wells might meet religious opposition. The construction of the obligatory bathing platforms and drains was neglected, however, an omission to which the village level worker did not pay enough attention.

The author concludes that caste interference may play an active, marginal or passive role, but in the latter case other social forces such as group and personal conflicts and rivalries for village leadership may cause problems; while insufficient efforts and planning by the government officials may also lead to unsatisfactory sanitary improvements.

KW: constraints, evaluation, extension, environmental sanitation, social structure.

57. KHARE, R.S.
(Kanyakubja College, Lucknow)

Ritual purity and pollution in relation to domestic sanitation,
The Eastern Anthropologist, 15, (1962), pp. 125-149.

DA: 1958-1960

CO: India

AN: In an anthropological case study in a North Indian village (Godalpur), the relationship was studied between traditional beliefs and practices on ritual purity and pollution on the one hand and modern sanitation on the other hand. Although the activities of ritual purity are directed at the welfare of the soul and the spiritual state of the individual, they have a physical dimension which may be of assistance in action programmes on environmental sanitation in rural India.

The concept of cleanliness was found to be used in the wider sense of lack of dirt and disorder through proper behaviour, but no notions of disease transmission were included. Ideas of physical cleanliness and ritual purity may, or may not, overlap: vegetable peels and scrapheaps within the kitchen area, rodent excreta in flour, mud and tiny worms in the drinking water and flies are considered dirty but not polluting, while drains, sewages, soakpits and ditches are polluting by definition, no matter how clean they may be. Some of the actions to attain ritual purity may also serve to promote personal and household hygiene, e.g. habits of plastering and bathing, but others may have not effects, or negative ones, on physical cleanliness, which however, is also practiced for its own sake.

The phase of transition from the ideas of ritual purity and pollution to domestic sanitation is subdivided into three phases: the abandonment of strict adherence to traditional beliefs and practices; the acceptance of a dual standard and the development of a relative vacuum which could be filled through health education.

KW: beliefs, environmental, sanitation, practices.

see also: KOCHAR (1977).

58. KIDD, R.; BYRAM, M.
(University of Botswana, Institute of Adult Education)

Laedza Batanani, popular theatre and development, a Botswana case study, Popular Theatre Committee, University College of Botswana, Institute of Adult Education, Gabarone, (January 1978), pp. 12, bibl.

also published in *Convergence, Journal of the Int. Council for Adult Education*, 10, 2, (1977).

DA: 1974-1976

CO: Botswana

AN: A report on the origins, objectives, planning, implementation and evaluation of a "community awakening" festival, an annual one-week programme of popular theatre performances (drama, puppetry, music, singing and dancing) and community discussions in Bikalaka region, Botswana.

The festival was organized to break through the steadily declining interest in kgotlas (village meetings) as a tool for village development, and to offer an alternative approach to the existing extension services which were mainly concerned with providing information and services to a converted few.

Three festivals have been organized so far, in 1974, 1975 and 1976, the last one featuring venereal disease and sex education, nutrition, vegetable gardening and village sanitation. Performances are organized as a mobile tour and are characterized by a high degree of audience involvement in performances and group discussion.

The festivals are planned by two workshops. One is a community workshop consisting of over 100 villages leaders and organizations (traditional leaders, local politicians, village development committee members, field workers, teachers and church and women's group leaders), who identify problems, set priorities, test the selected topics in improvised drama and elect the annual festival committee of community leaders and extension workers. Criteria for problems selection are their solvability by setting modest targets for individual, family and group action rather than by overall community action or government assistance, and their suitability for follow-up activities by the regular extension services.

The second workshop is attended by the acting community members and 2 or 3 field workers from agricultural extension, community development and health education agencies in the area. The messages chosen are based on realism, e.g. advising people to dig trenches and cover excreta, if means and motivation for building a proper latrine are lacking.

Since 1976 printed material in the form of picture story booklets has been used as an additional source of information at the festival and in follow-up programmes, e.g. in the local primary schools and through the regular extension services. Extension workers have been given additional training in the festival topics through attendance and correspondence courses.

Evaluation of the 1976 campaign consisted of group interviews before each performance, but the post campaign survey had to be postponed due to military attacks in the area. Festival attendances (100-150 during the day, and 200-400 at night) compared favourably with those at community meetings (20-30) and on farmers' days (50-80).

KW: evaluation, extension, health education, implementation, media and methods, planning, problem identification, selection criteria, training.

59. KIVLIN, J.E.; ROY, P.; FLIEGEL, F.C.; SEN, L.K.
(Michigan State University)

Communication in India: experiments in introducing change,
National Institute of Community Development, Hyderabad,
Research Report 15, (1968), 55p.

DA: 1964-1967

CO: India

AN: An evaluation of the impact of different communication media (radio forums, rural animation and literacy classes) on the adoption of agricultural, health and family planning practices in India. The study was initiated in 1964 and is part of a larger two-nation (India and Costa Rica) comparative study. Six matched villages were selected in Lucknow area as experimental villages, while two others served as a control group. For one year (1965) literacy classes, radio forums and animation were used in the respective pairs of experimental villages, in addition to the regular extension approach. The programmes were preceded by a benchmark survey among 702 heads of households on socio-economic characteristics, level of knowledge, trial and adoption of ten agricultural practices, family planning and five public health practices (waterseal latrine, smokeless stove, bedbug killer, modern childbirth practices and multiple inoculation). A resurvey was carried out among 463 of the original respondents in 1966 and 279 in 1967. Non-cultivators and animation villages were dropped from the sample, the latter because of lack of measurable impact.

Knowledge, trial and adoption of health practices differed significantly for the three village pairs, with radio villages scoring highest in all three categories, while literacy villages scored higher (but not significantly so) than control villages. Average knowledge of health practices was 3, adoption scores varied from 0.57 to 1.11. Ten respondents disclaimed any knowledge of the health practices surveyed, even after participating twice. Fifty-three people had not tried any of the practices, and 126 were non-adopters in 1967. Adoption of inoculation was highest in all three surveys, followed by the bed-bug killer; smokeless stoves were not adopted in any village, but no questions were asked on the reasons for this behaviour. In addition, eleven variables (extension agents' knowledge and contacts, literacy, radio listening, newspaper reading, film visits, formal social participation, index of social change, political knowledge, secularism and aspirations for children) were related to practice adoption. The recall and appreciation of the programmes by the villagers was high: 84 per cent of the respondents correctly described the forum programme and 91 per cent the literacy programme, while only 8 and 12 per cent did not consider them useful. No reasons for this opinion were asked. Radio forums were considered to be most useful as an informatory medium for new practices (63 per cent), while literacy classes were seen more generally as learning to read and write or become educated (81 per cent).

The authors advise increased use of radio forums, where they elicit participation from villagers. They stress the extension of highly relevant and technologically sound practices, with avoidance of non-popular items such as a smokeless stove. An explanation of this rejection has not been attempted. Literacy programmes should be seen as a long-term investment in development or as a social welfare.

KW: adoption process, communication media, evaluation, public health knowledge, practices.

see also: ROGERS et al. (1970a, 1970b), and
ROY (1968)

60. KOCHAR, V.

(Department of Preventive and Social Medicine, Institute of Medical Sciences, Benares Hindu University, Varanasi)

Intrinsic regulators of man-parasite interactions: culture patterns and human behaviour relevant to hygiene, sanitation and disposal of excreta in a rural West Bengal region, paper

presented at the Conference "Sanitation in Developing Countries Today", OXFAM/Ross Institute of Tropical Hygiene, Oxford (5-9 July, 1977), 23 p.

DA: 1968-1970

CO: India

AN: Socio-cultural research on local sanitation habits should be added to the epidemiological, engineering, administrative and economic components of rural sanitation programmes. Such research could categorize customs, habits and practices into promotive factors and risk factors, offering a way of reinforcing the former and counterbalancing the latter through interventions at another level.

The purity and pollution beliefs in India are an example of a health-related culture. From 1968 to 1970 a sample of 100 households and a subsample of 50 households, drawn from 12 contiguous villages in West Bengal, were studied on sanitation practices (defecation habits, water supply, cattle and household sanitation and personal hygiene). Although ritual procedures, rules and taboos for sanitation practices were generally accepted and even resulted in obsessions for washing hands and things, numerous routes for infection remained, such as frequent contacts with polluted sites used for various purposes (e.g. fuel collection and agriculture) by certain classes and groups, the looking after and sometimes lodging with domestic animals by certain members of the family and the use of village ponds for many purposes, including ablution, mouth rinsing and the washing of cattle, vegetables, clothes and utensils.

Similarly, domestic sanitation was found to be a mixture of promotive and risk factors, such as daily brooming and mopping, the monthly plastering of verandahs and the daily smoking-out of insects in the cattle sheds during the rainy season on the one hand, and the unsanitary conditions in 50 per cent of the cattle sheds and the presence of an average of 6.5 trash heaps or dungpits near the houses and ponds of the subsample on the other hand. In 51 per cent of the subsample households a defecation ground was to adjoin one or more sides of the pond used for domestic water supply. In 22 per cent of the instances it was found that some parts of the fecally polluted surface drained into the pond. However, the ponds were found to be used for household purposes only at specific entry points, while the drainage from fecally polluted surfaces was at another side. A sanitation index showed that the scores were positively related to a non-agricultural background, caste and socio-economic status.

The same type of mixture of positive and negative practices was found for personal hygiene, with daily to twice daily bathing in the village pond, but a general avoidance of soap except for hair washing. Other practices described are mouth rinsing, clothes washing, bedclothes cleaning, defecation habits and the use of footwear.

Although the households reported the avoidance of fecal pollution, this assertion was not confirmed by the investigation of actual behaviour. Latrines were owned by 9 per cent of the sample respondents, but only 1 per cent of the stools of the subsample recorded over one year had been passed in latrines.

The facilities were considered dirty, bothersome, difficult to service, unaesthetic and uncomfortable.

Despite these poor sanitation conditions, the level of endemic hookworm infections was relatively low, because the customs and habits of the population regulated the hookworm population.

Twenty-two protective and low-risk factors responsible for the natural regulation of hookworm infection in the study population are listed. The author advocates the use of these social and behavioural factors in sanitation and public health programmes, e.g. by the furrowing of groves and important defecation grounds, because people tend to walk and squat on the higher ground and defecate in the furrows.

KW: attitudes and practices, bibliography, environmental sanitation, excreta disposal, health education, preventive health.

note: This study has also been reported in Kochar, V.K. et al., Human factors in the regulation of parasitic infections: cultural ecology of hookworm populations in rural West Bengal, in F.X. Grollig, H.B. Haley (eds), Medical Anthropology, The Hague, Mouton (1976), pp. 287-312.

see also: KHARE (1962)

61. KREYSLER, J.

(Max Planck Nutrition Research Institute, Bumbuli, Tanzania)

Uhuru na Maji: health, water supply and self-reliance in Mayo village, *Journal of Tropical Pediatrics*, 16, (1970), pp. 116-123.

DA: 1966-1968

CO: Tanzania

AN: Report of self-help community development activities in Mayo village, Usumbura district, South Tanzania. In the summer of 1966 the results of a medical routine examination of all school children were discussed with the elders of Mayo village in a meeting at the school, which led to a school feeding project.

A mess hall and a kitchen were built by the villagers. A sale of locally made articles provided money for food, transport and the cook's salary. The following year the programme was made self-sustaining by the start of a vegetable garden and chicken farm, with contributions of maize and hens by school children's relatives.

At the request of a group of mothers, a clinic for children under 5 was started next, with a small payment required per visit. Unreliable paying habits of mothers varying from 10 to over 50 per cent and low attendance in planting and harvesting seasons, limited the clinic's success to such an extent that the village development committee started a campaign to motivate regular payment.

The results of stool examinations in village and school were reported to a meeting of parents and children. The report revealed a high rate of infection with intestinal parasites. Parents asked for information about its causes, and a decision was taken to improve the village surface well. The village opted for an improved system, and practical trials were made. Bamboo pipes failed and an estimate of the cost of building concrete open channels revealed that they would surpass the costs of piped system. So, after three months, the village decided on a piped system. An application to the Ministry of Community Development and National Culture was successful. The system was built with community labour. It provided one tap for every ten houses, in accordance with the ten-house divisions introduced by the national party system. The water source was selected by the elders and the siting of the three storage tanks was decided on by the villagers. On-the-job training of approximately ten villagers for maintenance and control broke the monopoly previously held by one craftsman.

Improvements which followed the project were the irrigation of a cooperative field with surplus water, extension of brick making, and an extension of the project for the distribution of drinking water to the dispensary and four other villages. Further extension in the area did not take place, however, as other village leaders ascribed the achievements to the assistance of expatriates.

During the project, a number of objectives were formulated by the 10-House Chairmen of the village. Planning responsibilities, which included timing and actual workload for each project

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India

were to come from within the village according to the regulations of the Village Development Committee. Expatriates and Tanzanian experts would play an advisory role in a very informal way. Detailed technical plans were to be the responsibility of experts and the craftsmen of the village. Certain mistakes and failures were accepted as unavoidable. Minimal outside help necessitated financial contributions from the local people.

KW: administration, design, financing, implementation, maintenance, planning, progressive development.

62. LAAK, F. van der
(Misereor/Diocese of Shinyanga, Tanzania)

The Ndoleleji Water Development Scheme, in D. Warner (ed.), Rural Water Supply in East Africa, proceedings of a Workshop at the University College, Dar es Salaam, BRALUP Research Paper 11, (17-19 December, 1969), pp. 165-170.

DA: 1968-1969

CO: Tanzania

AN: An evaluation report of the Ndoleleji Water Development Scheme in Shinyanga district, Tanzania, set up after the successful installation of two windmill-operated supplies constructed with voluntary labour and the partial failure of a concrete-lined well. The latter was constructed with paid labour, which, according to a decision of a special water meeting, was financed through local taxes. Not all taxpayers were subsequently drawing water, however, while some non-payers were.

These experiences led to a new programme which is initiated by contacting the Village Development Committee and their respective ten-house cell leaders, who are also given brochures in the national language. Further extension is through contacting neighbours. After that a meeting is called to discuss the project and to start a water scheme. A target amount for member contributions is fixed and public commitments are made for free labour and financing through the cultivation of one acre of cotton in a communal field. A schedule of work and a duty list are agreed upon and an elected committee is made responsible for the organization. Covered wells are constructed in the river bed, with a piped supply to the shore, while the community chooses wither a handpump or a windmill operated pump. The construction is positively influenced by inter-village competition.

After the completion of the supply, the water committee is responsible for its operation and maintenance through the collection of monthly repair dues. The project has also resulted in a cooperative workshop for water association members.

A constraint was the weakness of the existing official local communication channels, of the village development committees and of the cell leaders. It was due to changes in local government personnel, organizational changes at divisional level, the absence of institutionalized channels for the calling of assemblies and the lack of detailed area plans and records, leading to a dependency on a personal initiative of local officials. The limited availability of known water sources and the lack of technical know-how for exploration, and communal farming villages (ujamaa villages) were other negative influences.

KW: constraints, evaluation, extension, financing, implementation, maintenance and administration, operation, planning.

63. LEST, J.C.C. van der
(North Brabant Social Welfare Foundation)

Community self-survey: purpose and significance, directions for application, Working Party on Rural Sociological Problems, Netherlands, Ministry of Social Work/F.A.O., The Hague/Rome, (1962), 37 p.

DA: -

CO: -

AN: Several methods can be applied to secure optimum community involvement in social change programmes, such as regular group interviews with fixed groups in the community, representative committees with advisory or evaluation functions, data collection, conduction of enquiries, etc. by the population and community self-survey. The last method differs from the other three in that the choice of subject, the wording of the problem, the collection, arrangement and interpretation of data are all done by the population itself (with some expert assistance).

A community self-survey has two main functions, a sociopedagogic function, making people more conscious of their own situation, and a research function, by providing data for social policy planning. However, it can only serve as an additional tool to normal social research in the planning process. Additional functions may be improved contacts between various

people and groups when they discover that they have problems in common, replacement or supplementation of community staff, a better understanding of democracy, and acquaintanceship with the means available to policy makers.

The author cautions against influencing the population in the direction of the action desired by the planning agencies. It is imperative to follow up the survey by action in the fields identified and channeled through the persons who have introduced and instigated the survey. Failure to do this may cause frustration, mistrust and apathy in later programmes for social change.

The self-survey process is divided into three phases: preparation, execution and conclusion. Initiation can be either by outside experts (planning agency, community development workers, etc.), who should be qualified and perceived as such, or by the joint initiative of a number of formal and informal leaders or organizations and associations. Internal considerations which are part of the preparatory process concern: the aims of the survey, varying from getting an already planned action accepted (without, however, revealing the problems and proposed solutions before the survey, as it is hoped that the population will discover these facts by themselves), to getting a plan of action designed by the people based on survey results, and producing a change in mentality. They also concern the subjects to be surveyed (concrete problems or general structure analysis). Extensive knowledge of the community is necessary in this stage, e.g. on advantages and disadvantages of the survey in the light of existing intergroup relationships and distribution of power. Sociological exploration of communication channels, informal and formal leadership, intergroup relationships and power structure may be needed. During the preparatory phase contact is established with local, regional, secular and spiritual authorities, services and institutions. The idea of a self-survey is introduced at one or more meetings, with official and unofficial leaders, organizations and groups, either singly or jointly. The potential participants are listed, and a selection is made on their representativeness as regards sex, age, religion, social class and membership of associations and organizations in the community. To this can be added their personal characteristics and place within the community's communication network. The number of participants will depend on the number of small groups needed, either one group studying one subject or several groups each studying one specific part of it. Maximum size would be 12-15 members per group. The next steps are approaching the participants personally and inviting them to take part, explaining their position and the phases of self-survey; valuing organizational arrangements such as estimated number of meetings, regularity, duration and place and organizing the pu-

blicity, using the channels between the participants and their background.

The execution phase consists of group discussions, with training in discussion techniques for chairmen and secretaries and careful avoidance of a group interview approach, fieldwork, with collection of data, conduction of enquiries and observations, and continued communication via participants (check), local publicity campaigns and authorities.

Problems of mutual distrust, lack of frankness, misunderstandings and conflicts, as well as dominance of certain participants may hinder the groups in action.

The conclusion phase consists of a report on the findings of the survey group(s) and initiation of social action. Priorities are established and a concrete scheme of action is designed, in which the degree of community involvement will depend on local competencies and the degree of delegated central authority. The results of the self-survey are communicated to the community, with systematic publications of the findings in serial form mentioning the participants, a grand closing night for all sections of the community and discussion of the report in organizations, societies and neighbourhood meetings.

The role of the social science or community development expert (in the background only) consists of the sociological exploration of the community structure and relationships, and comparison of the opportunities and values of a self-survey with other social research methods, executed simultaneously during the preparatory stage. During the executive phase expert guidance will be needed on problem and question formulation on research terminology and on choosing methods of data collection. Simple techniques can be taught, such as inquiries, interviews, reading statistics and interpretation of facts and data. In the concluding stage, expert assistance may be needed in composing the final report, to indicate the possibilities and priorities for action and pass on results to the authorities.

KW: implementation, manpower, planning, problem identification, research, social structure.

64. LEVINE, R.J.; D'SOUZA, S.; KHAN, M.R.; NALIN, D.R.
(Epidemiology Bureau, Center for Disease Control, Atlanta, USA)

Failure of sanitary well to protect against cholera and other diarrhoeas in Bangladesh, *The Lancet*, (July 1976), pp. 86-89.

DA: 1974-1975

CO: Bangladesh

312

AN: The relation was investigated between tubewell use, water practices and the frequency of cholera and non-choleric diarrhoea in an area of Bangladesh with a high incidence of these diseases.

Demographic data were collected from four periodic censuses covering the period between 1963 and 1974 and from vital statistics available since 1966.

In addition, all activities at water sources were discreetly monitored and recorded by observers for two full days. For two more days individuals using each source, were identified and questioned about intended use of the collected water.

Frequency of source use and type and size of vessel were noted.

An average of four sources was found to be used per family. Each source was used for many purposes, like washing rice seedlings, food, utensils and household items, personal hygiene, drinking, animal watering, mud collection, the gathering of windfall fruit and water hyacinth, playing, fishing, cooling buckets of milk, human excreta disposal and subsequent cleaning.

Tubewell users did not have a lower incidence of diarrhoea than the families using canal or pondwater. Tubewell water was used predominantly for drinking purposes, but surface water was still preferred for bathing, washing and preparing food. Those who did have a lower incidence of diarrhoea and cholera, whether they used tubewells or not, were families with a high socioeconomic status, as indicated by the presence of one or more high school graduates.

The authors suggest that factors like personal hygiene, nutritional status and crowding, are responsible for this difference. They stress the importance of public health education or other programmes to stimulate the use of tubewells to the exclusion of all other more contaminated water sources.

KW: health education, health impacts, inequity, practices, water use

65. LOCKETZ, L.

(Bureau of Public Health, Paramaribo, Surinam)

Health education in rural Surinam: use of video tape in a national campaign against schistosomiasis, PAHO Bulletin, 10, 3, (1976), pp. 219-226;

also published in Spanish in *Boletín de Sanitaria Panamericana*, 81, (1976).

DA: 1973
CO: Surinam

AN: A description is given of a mass campaign against schistosomiasis in the Saramacca district, Western Surinam; where the incidence of this disease was very high (41 per cent of the population tested in one part of the district was found positive).

The campaign consisted of a medical survey of all inhabitants, treating all cases identified, the control of the environment by spraying and drainage and health education on the disease itself, the construction of sanitary latrines and the use of public water systems.

As part of the health education programme pamphlets, posters and a videotape were developed. The tape was locally produced with the use of local residents and members of the campaign team as actors. The lingua franca of the district was used to serve the ethnically mixed audiences. The tape was screened by government experts to ensure maximum publicity value and likelihood of cooperativeness of the people.

The first public showings were at the annual district fair and in the waiting room of the campaign's clinic; but little impact was noticeable.

Organized school viewings in the 15 schools of the district proved more successful, but a follow-up was found necessary. This follow-up consisted of group discussions immediately after viewing, a knowledge quiz two days after the viewing, (after establishing a limited baseline for evaluation and stressing the non-academical nature of the quiz) with better results for those schools in which a lively discussion had taken place, and the distribution of two booklets on schistosomiasis, to the teachers and students respectively, health education pamphlets to the school libraries, and a poster for display in the school building.

This approach resulted in several requests for demonstrations, field trips for the collection of snails for school laboratory testing and an art contest organized by one school for parents' day. This resulted in posters, slogans, murals and booklets on schistosomiasis developed by the students.

The author comments on the necessity to adapt the speed of the tape to the audience to counteract distraction and language problems. Further tapes, with puppet shows and plays written and produced by students, are being considered and improvements of the public water system are being carried out.

KW: environmental sanitation, evaluation, health education, media and methods, preventive health.

66. LORING, W.C.
(US Public Health Service, Department of Health, Education and Welfare)

Environmental health education: a different orientation, *International Journal of Health Education*, 20, 1, (1977), pp. 51-56.

DA: -

CO: -

AN: Two major shortcomings of many environmental health programmes are registered. Firstly, benefits are often short-lived, due to lack of the use of appropriate techniques and to the termination of the health education component when the physical aspects of the programme have been carried out. The second shortcoming is the lack of interest in chronic disease compared with the prevention of infectious disease and injuries from physical hazards and toxicants.

A model is therefore developed to illustrate the relation between five components of the environment (inorganic and climatic factors; biological factors, like food chains; bacteria, viruses and vectors; man-made physical factors of human settlement; and nutrient and social factors) and the responses of the human organism, whereby disease and death are influenced by various blocking responses (e.g. immunization), susceptibility, tolerance and behaviour patterns.

In developing countries, environmental health programmes directed at diseases from toxicants and physical hazards will usually be started with the control through cost-effective technologies such as public water and waste disposal systems, with little health education. They are followed by programmes in which the health educator acts as a co-partner of the sanitarian or safety inspector. These continue until the village has established community organizations to take over such reinforcement and retraining of its members.

With increased development, more emphasis on chronic diseases can be expected. The importance of the health educator will grow, as well as that of fellow-professionals in community organization, social and group work, recreation and home economics.

Working with groups is emphasized, because posters, media releases and lectures for meetings of voluntary associations in effect only reach a minority of any educational or income strata. Health education in the schools is only directly useful when it extends from the classroom to the home.

Community organization and development techniques are advocated to motivate adults to participate in planning programmes

and to provide their own self-help during the maintenance phases following the active programme.

Five fields for further investigation are mentioned: the development of quick and effective communication methods to alert and motivate specific populations; the identification of ways to keep voluntary organizations from weakening or disappearing altogether due to factionalism, splintering or continued community resistance to push for change in an area; the development of methods to reach apathetic populations, e.g. by using para-professional community health aides; the identification of community leadership; and the setting-up of continued health education for community organizations until behaviour changes have become self-continuing habits or customs. Guidelines are mentioned for the last three fields.

KW: bibliography, environmental health, health education, media and methods, research.

67. MARTENS, E.G.

(Department of National Health and Welfare, Ottawa)

Culture and communications - training Indians and Eskimos as community health workers, *Canadian Journal of Public Health*, 57, (1966), pp. 495-503, (English, French summary).

DA: 1

CO: Canada

AN: Special training courses for Indian and Eskimo community health workers were set up after one year of preparations (visits, meetings, workshops and conferences with medical services, government and non-government agencies and community leaders). A multi-disciplinary committee was set up to outline the programme, and the region with the most cooperative administrative climate was selected for a pilot project. A regional planning committee was established for area selection, planning and implementation. The suggested programme was presented for discussion in the communities by means of slides and flannel-board. Selection of health workers was made by asking the Indian chief and councillors and the Eskimo village committee to select four candidates from the applicants in their community. No academic or age standard was required but questions were asked to ascertain personal leadership qualities. The final choice was made by the regional planning committee, and consisted of men and women between 25 and 64 years, whose levels varied from 1 to 8 years of school education.

Training took five months, two months of orientation in the home villages with assignments and projects (data collection on resources, services, agencies, health conditions and health attitudes in the village), and three months of formal training in a central location, in the form of a problem-solving semi-structural workshop. Information was given through short talks, demonstrations and visual aids to the larger group, and was discussed in small informal groups composed of students only. Student committees were set up and classes were as much self-governing as possible.

The involvement of different cultural patterns led to several problems which had to be solved in the discussions: racial prejudice and hierarchy, a varying degree of time consciousness of participants, great demands in the adaptability of the staff, a varying tribal status of women, the acceptance of native language rather than a universal language, contrary to most participants' earlier experiences in schools and differential perception of the concepts used (like "surveys", which in the past had often led to expropriation).

After completing the training course the community health workers were officially reintroduced to their community in a community meeting called by the chief on request of the workers, who showed slides of their three months' training and explained their ideas. The changes attempted first were technical ones, such as water supply, maintenance and storage. Programmes where members of the community were involved in a community survey or a cleaning-up campaign led to further involvement in community improvement. The most successful methods were home visits and small neighbourhood group meetings. Barriers to community changes were the social distance between health worker and community members and traditional suspicion of the white man, his ideas and his assistants.

Although support from village leaders, particularly the chief and councillors, helped to overcome this constraint, a change in authority caused problems.

Supervision was provided by the local nurse, who was also involved in the orientation, the formal training, and on-the-job training.

Problems however, were differences in background and experiences, high turn-over rate of nurses, prejudice and strictly medical orientation. Success was greatest when the supervisor accepted the community health worker as a community expert rather than a health expert.

KW: health education, media and methods, manpower selection, supervision, training.

68. MATANGO, R.R.; MAYERLE, D.
(Maendeleo, Lushoto, Tanzania)

Maji na Maendeleo Vijijini: the experience with rural self-help water scheme in Lushoto district, in G. Tschannerl (ed.), Water Supply, proceedings of the Conference on Rural Water Supply in East Africa, 5-8 April, 1971, University of Dar es Salaam, BRALUP Research Paper 20, pp. 229-239.

DA: 1971

CO: Tanzania

AN: Interim report of the construction and maintenance programme of 10 shallow wells in Lushoto district, Tanzania. The allocation of funds was based on the directions of the second five-year development plan, nearness to administrative centres and local self-help traditions. Official representatives of the villages (political leaders, councillors and village and divisional executive officers) were invited to attend an initial meeting at the ward's headquarters, where the organizational structures and responsibilities were decided upon.

The Divisional Rural Water Supply, elected from those attending the meeting was to be responsible for the allocation of materials and the evaluation of construction activities, with the power of sanctioning substandard village performance by withdrawal and reallocation of materials. This happened in one case. Activities for community awakening, and the organization and supervision of self-help labour, including absenteeism, were the responsibility of the local committees, to be elected from political leaders, including ten Cell leaders (representing every ten households in the village) and village executive officers (ex officio). Additional inputs were official initiation ceremonies by members of parliament, lectures on the relation water-disease by the mobile training unit leader and the District Health Officer, and mobile van films on water related diseases and the impact of West African self-help projects on village life.

Some constraints experienced in the implementation at various places were: lack of village organization and leadership; frustration of expectations regarding paid labour and depth of groundwater; and problems in timing the construction activities. These were caused by the prolonged fasting for religious reasons (Ramadan), the existence of a fixed timetable for other community activities, already amounting to 2 days a week and problems in technical assistance (one mobile technician for all schemes, lack of transport, delays in delivery of materials and varying lengths of instruction periods needed). Merging the

project with the field units of another water supply project, the Lushoto Integrated Development Project eased this last problem to some extent.

For maintenance, one villager was selected by the other inhabitants and trained to carry out simple repairs. He was supplied with the necessary tools. No salary was paid but he was freed from all other communal duties. Continuity was a problem, however, with frequent changes of residence. Therefore six months' training courses were started in 1970 by the LIDEP, combining water supply maintenance with a basic trade in a regular small workshop in the village.

Institutionalized government assistance for such training and supervision activities and small yearly contributions towards supply maintenance by the village households, to be collected by the responsible body in the village (Village Headman, TANU Chairman, V.D.C.) are advised.

The authors advocate the development of a policy for grass-root local development, with a survey of village resources, funds and skills to avoid over-enthusiasm. They criticize the lack of planning for maintenance, which may make initially cheaper solutions more expensive in the long run, such as petrol operated pumps with lower installation costs than a night storage tank, but with a higher incidence of failure and higher recurrent costs.

Estimated costs, quantity and quality of water supplied, and population served have been given. Preliminary results of an evaluation study of water collection time and volume failed to show any significant improvements for those living farther than five minutes from the supply.

KW: constraints, health education, implementation, leadership, maintenance, media and methods, organizational structure, planning, selection criteria, socio-economic impacts, training.

69. MCGARRY, M.G.
(International Development Research Centre, Ottawa)

Institutional development for sanitation and water supply, in R. Feachem, M. McGarry, D. Mara (eds.), *Water Waste and Health in Hot Climates*, Wiley and Sons, London, (1977), pp. 152-212, Bibliography.

DA: -

CO: -

AN: The author criticizes the present approach to the provision of water supply and sanitation in developing countries. Among the shortcomings noted is the lack of appropriate national and local infrastructures. Activities are seldom coordinated and up to 10 or more separate agencies may be involved in supplying water within one country. Effective organizational structures should be developed, reflecting the political and economic realities of each country. The concentration on urban water supplies and sanitation with water as an economic good rather than a natural right is another point of criticism.

Healthy financing is essential, but should also serve as a tool in wealth-distribution politics. Subsidization of city water supplies and sewerage projects by national funds, which include revenues from rural areas, should be reconsidered. To decrease problems of political rivalries and bureaucracy, the establishment of municipal water agencies run by public authorities or a mixed company of public officials and representatives of the commercial sections (as in Brazil) and the use of revolving funds are suggested. The concentration on urban solutions has led to the application of an essentially similar method in large cities, smaller towns and 'urban' centres. This method, however, is not equally applicable in all cases, it can be interpreted as subsidizing the wealthy at the expense of the poor who are greater in number and need. Another problem is the lack of manpower. Training is often inappropriate, project oriented, piecemeal and based on foreign countries with curricula not adapted to local needs and often resulting in a brain drain or ineffective work when the trainee is bonded to serve his government for a number of years, while national courses are also mostly based on western curricula. Eventual employment offers little prestige and payment compared with other public service jobs and the private sector.

The author stresses concentration on village sanitation and water supply to raise health levels, but points to the need for placing these programmes within the context of integrated development and educational programmes for changing sanitation and hygiene attitudes and practices in the home. Efforts to raise village organization, motivational levels and productive capacities are necessary, combined with real community involvement, not only in implementation but also in the planning and design stages. More attention to the delicate process of technology adaptation and transfer, is also necessary. This demands a 'social' design of the technology involved and a regular dialogue between the technologist and the community. A social scientist should be added to the conventional team of engineer, physician and administrator.

The present tendency towards a greater dependency of the village on the government and of the government on international technical assistance donors is described and criticized. Finally, the linkage of sanitation and water supply to primary health care systems is advocated, so that in future they will stress water supply and sanitation more than they have done up to now.

KW: financing, health education, inequity, integrated development, manpower, organizational structure, primary health care, sanitation, training.

70. MEDIS, L.P.; FERNANDO, P.A.
(Ministry of Health, Sri Lanka)

Health education in emergency situation: a cholera outbreak in Sri Lanka, *International Journal of Health Education*, 20, 3, (1977), pp. 200-204.

DA: 1974

CO: Sri Lanka

AN: An outbreak of cholera in two villages in Sri Lanka led to a number of short-term preventive health activities with emphasis on health education and community participation.

The steps taken were: case detection among patient contacts (150-200 families) by short-trained volunteers; intensification of the ongoing immunization programme; chlorination of wells and stepping up of environmental sanitation activities; and implementation of a special health education programme. This focused on information of the public through various mass media and methods (leaflets, public address system, posters, press releases, spot announcements, cinema slides and street banners). Their message emphasized ten basic points for cholera prevention. Health workers, teachers and volunteers were informed about the programme through training sessions on causes and control of cholera and on special tasks for the promotion of community involvement. Community organization was part of the programme. Each village was asked to set up a special committee (composed of a representative of the local authority, and religious and voluntary organizations, village headmen, heads of schools, members of people's committees, western and local medical practitioners, the public health inspector, nurse and the midwife), to plan and implement health education programmes at village level.

The health education objectives, target groups, programme

content, manpower, methods and aids are summarized in a table.

A first evaluation of the programme showed improvements in knowledge and behaviour. Quantative evaluation consisted of a post campaign survey of cholera prevention knowledge in shools and community leaders meetings, and the percentage of the population covered by the immunization campaign (50 per cent), but no details on methodology and results are given. A long-term evaluation through another survey has been planned.

KW: evaluation, health education, implementation, manpower, media and methods, preventive health, training.

71. MESSING, S.D.; PRINCE, J.; YOHANNES, T.
(Southern Connecticut State College)

Health culture research in a developing country, *The American Behaviourial Scientist*, (April 1964), pp. 29-20;

also published in S.D. Messing, *The Target of Health in Ethiopia*, M.S.S. Information Corporation, New York, (1972), pp. 162-164.

DA: 1961-1963

CO: Ethiopia

AN: In order to investigate popular cooperation in and the impact of rural health centres, a multidisciplinary research team was organized to determine the baseline of disease patterns and attitudes and practices related to health.

The rural communities studied ranged, in population, from 1000 to 4500. They were selected to represent major ecological and ethnic dimensions. A description is given of the survey procedure and its results, in qualitative terms.

Various health attitudes and practices are reported. Hand-washing was emphasized by all ethnic groups, especially by the Muslims, before eating, but not after defecation. Home brewers also wash hands after their work. Use of soap for personal hygiene was greater among the traders than among the female food and drinkhandlers who used none at all, or only for clothes washing. Nomads from the Mogaden tend to deny sickness as a personal weakness.

Knowledge of fly prevention was low, except among shopkeepers in towns. They rarely practiced spraying, however. Only one lowland group could link malaria with mosquitoes.

Most people said that they had no idea of the causes of contagious diseases, although the concept is known to every ethnic group.

A large minority in the Ogaden blamed supernatural causes. Most groups admitted that drinking polluted water (defined as water through which cattle have walked) could cause diseases, but this idea was rejected by people from a pastoral nomad culture.

All non-Muslim groups thought that slight fermentation such as in barley beer, made the water safe. Knowledge of the need for boiling drinking water was limited to the younger salaried officials and a few merchants, who had not made it a regular practice, however. Sunshine for infants was generally rejected. A number of topics for comparative analysis have been added at the end of the article.

KW: attitudes, hygiene knowledge, practices, preventive health, water.

see also: MESSING (1965 and 1976),
MESSING et al. (1965), and
SPRUYT et al. (1967)

72. MESSING, S.D.; PRINCE, J.S.; YOHANNES, T.
(Southern Connecticut State College)

A method of health culture research in an African country,
Journal of Health and Human Behaviour, 6, (Winter 1965),
pp. 261-263;

also published in S.D. Messing, *The Target of Health in Ethiopia*,
M.S.S. Information Corporation, New York, (1972), pp. 166-171.

DA: 1953-1967

CO: Ethiopia

AN: A description is given of the methods used for a medical-anthropological baseline survey which was part of a public health experiment in four geographically and ethnically different regions of Ethiopia. The survey was initiated by a multi-disciplinary team consisting of an anthropologist, a public health engineer, an Ethiopian sanitarian and basic personnel. They contacted local officials and community leaders, compiled a descriptive community report and mapped the village household from which a random sample of 150 households (ca. 450 individuals) was drawn.

On arrival of the medical team, a survey was carried out collecting data on socio-demographic characteristics, using a demographic sheet, health background and conditions, using physical examin-

ations and laboratory investigations of blood and stool, use of water, existing health attitudes and practices, loss of work performance due to ill health and aspirational level of the head of the household. The sociological data were collected through a pretested questionnaire using open ended questions. Free treatment to the households involved was given simultaneously. Problems associated with the use of a sampling technique were annoyance at being excluded, fear of negative after-effects, e.g. levelling of hovels and misunderstandings arising from the inclusion of healthy people and the exclusion of the sick ones. Finally, medical treatment was widened to all those asking for it.

In their conclusion the authors stress the importance of anthropological studies preceding public health enterprises to clarify the viewpoints of community members. Results of the survey have not been included.

KW: attitudes and practices, constraints, economic impact of health knowledge, preventive health, research design, water use.

see also: MESSING (1976),
MESSING ET AL. (1964 and 1965), and
SPRUYT ET AL. (1967).

73. MESSING, S.D.
(Southern Connecticut State College)

Emics and etics of health problems in Ethiopia in F.X. Grollis, H.B. Haley (eds.), *Medical Anthropology*, Mouton, The Hague, (1976), pp. 429-435.

DA: 1965-1969
CO: Ethiopia

AN: In a health centre project in Ethiopia the effectiveness of the programme was measured by giving 'before-and-after' questionnaires to heads of households in four experimental villages and control villages. The households had been drawn at random from the map of their villages prepared by the sanitary engineer of the research team.

Participant observation resulting in community reports was used to check the accuracy, validity and relevance of the measurements.

Questions were asked on educational and community aspirations, showing the highest or second highest desire to be for "clean water" in 5 out of 8 villages, whilst a "clean town" got a high priority as well. The number of answers in the "don't know" category was very high, however, with an average of 39 per cent. The author insists that the desire for water did not necessarily mean the desire for clean or pure water. No basic

changes were found when comparing the baseline survey and the resurvey after four years. From his experiences in participant observation, the author concluded that such motivational surveys measure ideal culture rather than real culture, expectations or planning. He stressed the need to study survival patterns and subsistence anxiety. This is more useful than sociological questionnaires.

KW: environmental sanitation, evaluation, preventive health, research design.

see also: MESSING (1965),
MESSING et al. (1964 and 1965),
SPRUYT et al. (1967), and
MESSING and PRINCE (1966)

74. MESSING, S.D.
(Southern Connecticut State College)

Application of health questionnaire to pre-urban communities in a developing country, *Human Organization*, 4, 4, (1965), pp. 365-372;

also published in S.D. Messing (ed.), *The Target of Health in Ethiopia*, M.S.S. Information Corporation, New York, (1972), pp. 172-188.

DA: 1961-1963

CO: Ethiopia

AN: A report on the design of a socio-anthropological baseline survey on health attitudes and practices in four pairs of matched study and control villages and one pre-test community in Ethiopia. The baseline study preceded the establishment of a health centre in the four experimental communities. The communities selected were situated in four ecologically, epidemiologically and ethnically different regions of the country. The surveys carried out for the baseline were a medical survey of a sample of 100 households, drawn at random from a map of village households prepared by the team's sanitary engineer and a socio-anthropological survey of a subsample of 50 randomly chosen households, using a pretested questionnaire. A manual in five languages was prepared for the training of the interpreters.

During the mapping period the social anthropologist of the team introduced the survey to the community by establishing contact with official leaders and opinion leaders (religious

chiefs, traditional healers, chiefs of burial societies and investment clubs, etc.), dispelled rumours and noted qualitative observations in a daily log for a ethnographic community report.

Data were collected on aspirations for children; loss of work performance due to illness; knowledge, attitudes and practices related to health; drinking water and personal hygiene; and perception of community improvements and social distance.

Questions were open and precoded, except for a question on hand washing which was put twice, the second time suggesting various occasions. Special problems connected with various questions are discussed, like the production of a cake of soap as evidence of its use. No results are given.

The author stresses the importance of an ethnographical basis for baseline research in developing countries and of recording and reporting problems and solutions which emerged during the field study rather than presenting only the refined data.

The complete questionnaire for the subsample survey is added to the article.

KW: attitudes, constraints, economic impact of health, practices, preventive health knowledge, research design, water use.

see also: MESSING (1976)

MESSING et al. (1964 and 1965), and

SPRUYT et al. (1967).

75. MISRA, K.K.

Safe water in rural areas, an experiment in promoting community participation in India, *International Journal of Health Education*, 18, 1, (1975), pp. 53-59.

DA: 1963-1975

CO: India

AN: A report on the Banki Piped Water Supply Project, a rural water supply project in 7 villages in Uttar Pradesh started in 1963, after the failure of a public standposts project. The influence of health education and village participation on piped water supply practices is discussed.

Data were collected on the socio-economic background and the existing water supply situation, and attitudes towards water supply were sounded in interviews with representative members of the various subgroups in the village. There was general opposition to the scheme.

A review of the opinions is given. Constraints were based on apprehensions of water charges, perceived relative qualities of traditional and piped water, cultural and sociological patterns concerning the position of women and the education of children, emotional factors and superstitions, perceived supply problems (reliability and waste water disposal) and mistrust of government intentions (family planning). Favourable reactions based on health and convenience considerations came from more educated and innovative villagers.

Several health surveys were carried out in the course of the project, with the triple objective of measuring the impact of the project, improving its credibility by providing treatment and serving as an educational tool.

The author's report of the educational programme concentrates on message content and information channels. A large number of arguments in favour of adoption are listed, based on the attitude constraints found in the survey. These can be classified into 4 categories: dissatisfaction with current conditions and motivations for improvement; parallels with other - already adopted - innovations; correct information to counteract misconceptions and economic arguments.

The channel found to be most effective was the participation of the health educator in the informal evening sittings.

Village participation in the project organization was realized through the installation of a management committee of seven, one representative from each village, selected in consultation with the heads of the panchayats. This committee was responsible for maintenance, management and the collection of water charges.

The impact of the scheme is apparent in a reduction in morbidity of water-borne and -washed diseases, a decrease of child diarrhoea cases and an increase in the number of private house connections. No distinctions, however, have been made according to socio-economic or other characteristics, to differentiate between adopters and non-adopters.

KW: administration, constraints, evaluation, health education, maintenance, media and methods,

76. MIYASAKA, T.
(University of Tokyo, Department of Health Sociology)

An evaluation of a ten year demonstration project in community health in a rural area in Japan, *Social Science and Medicine*, 5, (1971), pp. 425-440.

DA: 1957-1966

CO: Japan

AN: An abridged report on the evaluation of a ten year demonstration and action research project in community health in an agricultural community, Chiyoda Mura, near Tokyo, Japan.

Direct objective was the improvement of the health situation (infant mortality rate of 54.3, high incidence of bacillary dysentery and tuberculosis, unsafe water in almost all wells, according to tests in 1954). The methodological objective was the involvement and cooperation of as many people as possible through health education and community organization. The indirect objective was the improvement of various aspects of community life (village coherence and cooperation, health as a felt need, position of women and role differentiation, democratic leadership, urban life style, higher incomes and improved farming).

For the participation of the community in the various project activities, use was made of existing and new village organizations such as: the ten old villages, called buraku, of which the community was a conglomeration, with their subdivisions into neighbourhood organizations of ten to twenty households each; the group of health members, each one selected for 30 families; the maternal and child health team, made up of women leaders, with each member representing 10-15 families; the pupils' health groups consisting of upper grade primary school pupils and junior high school students; the neighbourhood sanitary teams and their federation (since 1963); the Young Men's association and the Health Council, consisting of representatives of the above organizations and other community leaders from schools, welfare committee, agricultural organizations, etc.

Planning and implementation were, until 1959, the responsibility of the village government. A general conference, once or twice a year, served as a link with higher level government and project agencies. An expert committee with members of the survey team and health and welfare personnel at district and state level, meeting once a month, advised on health problems in the area. Projects were mainly of the campaign type (tuberculosis, mother and child health, high blood pressure, fly and mosquito control) with hardly any community participation in programme choice and planning. An exception was the Savings Programme for Water Work Construction initiated by a group of housewives in 1957. The village authorities' opposition to educational and democratic principles is attributed to their demands for a quick and overall improvement in health. A change in local government created a leadership vacuum in the project which was filled by the voluntary Health Council, opening the way for programme planning by the community.

Their programmes were based on self-surveys of a particular problem, such as surveys on fly breeding places and toilet faci-

lities by Pupils Health Groups in 1959/1960 and 1962, and a sanitary facilities survey, with the use of sanitary improvements cards by Health Members (1960).

Training for community leaders and special classes for young mothers, fathers and grandmothers were improved, using group discussion and visual aids, partly developed by volunteer teams.

Evaluation of the programme results included the enumeration of the various activities and the number of people participating in them; the average number of volunteers involved every year in the various programmes; the decrease in services demanded by the demonstration area from the health centre (from 25 per cent to 7 per cent) in terms of person days, morbidity and mortality decrease for bacillary dysentery and mortality decrease for tuberculosis and other specific conditions in the project area. A 90 per cent decline of intestinal parasite cases, and improvements in high blood pressure conditions of the most affected categories were also noted. Other indicators for programme success were the degree of participation in health programmes, like tuberculosis screening (95 per cent in study area, 15 per cent in control area), knowledge of specific health problems and programmes, and perceived programme impacts, such as improvement of kitchens (37 per cent in the study area and 25 per cent in the control area) and increase in health knowledge (30 per cent versus 1 per cent). Understanding and participation of programmes not linked to special voluntary organizations, e.g. the special buraku programmes and those of the neighbourhood sanitary teams, was less good, while belief in susceptibility to tuberculosis declined. Evaluation of the indirect objectives mentioned above was qualitative.

KW: evaluation, health impacts, planning, preventive health, research, socio-economic impacts.

77. MORFITT, R.P. et al.

A non-conventional mass approach to rural village water projects,
Pan American Sanitary Bureau Report to the Pan American Health Organization, (May 1969), 48 p.

DA: -

CO: Latin America

AN: A theoretical framework for a total rural water supply programme in Latin America, advocating a mass approach through standardization in system design, community involvement and training of community personnel, without losing the necessary flexibility for the most economic and socially acceptable systems.

To lower design and construction costs the author advocates the acceleration of field data collection through aerophotographs and limited topography surveys. He also stresses the development of design criteria, such as a population estimate using the aerial photographs; the use of design periods per element; the provision for fire protection related to the economic housing value, low single-tap water consumption levels, with adjustments for domestic animals only and adaptations to water systems pressure, storage capacities, pumping equipment and metering. Selection criteria should be defined, such as health conditions, technical feasibility, per capita cost, willingness to contribute in construction and willingness and capacity to operate and maintain the system. The use of pre-designed standard elements is also advocated.

Each community should contribute in labour and local materials, but financial contributions should be flexible and based on information collected in the community analysis. It is estimated that up to 50 per cent of the construction cost and all operation and maintenance costs can be borne by the community, but designs should be adapted to the capacities present locally.

In order to acquire a maximum of community participation the authors first recommend a community analysis by a local surveyor or team in order to examine past and current social changes (education, economics, professional skills, health and outside contacts), to determine attitudes towards community efforts by analysing earlier development projects and to assess current attitudes towards water. The methods advised for developing such a community profile are (in order of importance): observation, discussion and question-and-answer techniques. Survey findings should then be evaluated by a committee composed of village leaders and project staff.

Secondly, they recommend the optimal use and extension of the existing local communication system for information and feedback through the selection by the village government of a village communication representative, and the identification of current information methods. The need for additional information and information channels can be determined by comparison of the existing communication capabilities with the information workload presented by the project. Procedures, guidelines, training material and specific messages should be developed. The existing communication system is seen as a network of officials and opinion leaders in different fields and communication

locations (such as the post office), but methods for making this network visible are not mentioned.

Several information methods are discussed and 4 cost-reducing techniques are mentioned: the use of standard type messages, large scale production (per unit reproduction costs decrease with increasing amounts), wide coverage (true costs are production costs divided by number of people reached, so films may be relatively cheap) and design and production at village level, which may have an economical spin-off for the community.

Thirdly, they recommend the selection (by the village) of the person(s) responsible for community organization for water projects. He/they should define the minimum requirements of the village organization to participate in a water programme, and evaluate the current utilized and unused capabilities in a meeting with village officials and leaders. Tapping of unused village resources is stressed.

Training of community volunteers (social and technical) should be "progressive" and "delegated", i.e. on the job training with courses of increasing complexity for team leaders. Community construction workers could thus be used as a manpower reservoir for operation and maintenance. An example of a technical training course and of community involvement courses (for the community survey leader, community information leader and water system director respectively) is given.

To ensure continuity of projects responsibility of the community, continued employment of the progressively trained volunteers, and continued support from the Sanitation Programme of the Health Department (inspection, water charges plan, expanse resources, major equipment, annual rural water plant operation, and maintenance personnel training programmes) are strongly recommended.

KW: administration, attitudes, communication channels, operation and maintenance, planning, selection criteria, social research, training.

78. OBERG, K.; RIOS, J.A.

A community improvement project in Brazil, in B.D. Paul (ed.), Health, Culture and Community, Russel Sage Foundation, New York, (1955), pp. 349-377.

DA: January 1951 - October 1952

CO: Brazil

AN: An evaluation of an integrated rural development demonstration project in Chonin de Cima, in the state of Minas Gerais, Brazil. The project consisted of an agricultural component (general and vocational adult education) and a health component (local clinic, latrine construction programme and health education campaign).

The project was a joint undertaking of the Brazilian-U.S. Rural Public Health Service, the Brazilian-U.S. Agricultural Services, the Brazilian National Rural Education Service, the State Health, Agriculture, Education and Public Works Departments and the local Municipio government. Overall policy was the responsibility of the Joint Committee, made up of the directors of the participating agencies, meeting once a year in the state capital. Operational guidance was given by the Executive Council made up of appointed agency representatives, who met once a month in the state capital. Its chairman was appointed by the Joint Committee and acted also as general liaison officer. At local level the organizational set-up consisted of coordinator, appointed by the Joint Committee and a non-political Community Council, representing all classes and groups, which met once a week.

Village organization and conditions are discussed, including the sanitary situation (95 per cent of households without latrine and 90 per cent without safe drinking water).

Each component of the project experienced some specific constraints which in the case of the environmental sanitation programme was the lack of participation in latrine construction activities by the beneficiaries (pit digging and outhouse building). Wealthier villagers paid for this labour, but in families who lived in rented houses or where the father had died, left, was too ill, or was a migrant agricultural labourer, the health service finally took over the complete installation against small monthly payments. This resulted in a coverage of 90 per cent of the 125 families. Other activities carried out by the sanitary assistant were back-yard inspection, garbage disposal advice, well construction advice, and a water boiling campaign. Health education was part of the regular work of the health staff, with an additional mass approach using pamphlets, posters, lectures and filmshows. Evaluation of the campaign was quantitative only.

The major cause to which the authors attribute the ultimate failure of the project was its local administrative structure, which was incompatible with village institutions. Traditionally, the party in power had complete freedom in decision-making during its ruling period, while in the Community Council they were often overruled by the combined opposition, the vote of the coordinator and of others who had never had a vote before.

A social survey before or during the initial stages of the project might have prevented this situation, but lack of cooperation of the prefeitura, at municipio (county) level, the lowest administrative unit in the country, caused the delay of two anthropological studies of the area.

The project was replicated in another community in the same state, Pedro Leopoldo, selected for the absence of the factors causing the various programme constraints.

Community participation was effected through the involvement of local authorities and leaders only and an official in the state capital in the state was responsible for project coordination.

An evaluative visit to Chonin de Coma by the anthropologist, one year later, revealed a continued interest, particularly in the health programme: 22 unfinished latrines had been completed and those installed were well maintained.

Various other innovations had been continued as well.

KW: constraints, environmental sanitation, evaluation, health education, implementation, integrated development, manpower, organizational structure, planning.

79. OBIBUAKU, L.O.

Socio-economic problems in the adoption process: introduction of a hydraulic palm oil press, *Rural Sociology*, 32, 4 (1967), pp. 464-468

DA: -

CO: Nigeria

AN: Report on the evaluation of a Nigerian government social service project, the introduction of a modern palm-oil press in a West-Nigerian village. The installation was preceded by a careful information and decision process lasting for over 2 years. This was achieved through discussions with the Agricultural Assistant, (the local extension officer), and at the Area Farmers' Meetings, a demonstration trip to an oil-processing plant, and speeches by high-ranking government officials.

In the year after its installation a survey was carried out by a University/Government team. This survey was based on the record and experience of the Agricultural Assistant and on interviews with village heads and all 75 village women concerned with oil processing in the village. Although initial adoption had been high (72 per cent) and the total

percentage of people who tried out the new facility increased to 84%, discontinuation was considerable (60%), resulting in a final adoption of 24 per cent.

Knowledge of the press was 100 per cent and most women were convinced of its time saving effects and higher productivity.

The author gives several reasons for the high initial adoption rate in the village: the relatively long awareness-stage, the relative simplicity of the innovation, the low risk factor (no financial contributions were asked, only labour), the high degree of socio-cultural homogeneity of the village and the support by village leaders and heads of families. The high discontinuance rate is contributed to the lack of women's participation in the decision process, and the lack of attention to community participation in the operation and maintenance of the facility.

This led to the installation of an oil press which was designed for operation by men, while oil processing was traditionally a women's job. A change in this division of labour was resisted and the women had to work harder for less money.

As a consequence of the improved oil extraction, two byproducts of the old methodes were lost. The use or sale of these products had been the customary labour reward, while the profits generated by the palmoil itself (now even higher) benefited only the men. Another disadvantage was the stricter time schedule for operation, leading to long delays in the peak season and demanding changes in the women's time table.

KW: adoption and continuance of collective innovation, design, economic impact evaluation, operation and maintenance, social impact.

80. OGIONWO, W.

Socio-psychological factors in health behaviour: an experimental study on methods and attitude change, *International Journal of Health Education*, supplement to 26, 2, (1973), pp. 1-16.

DA: -

CO: Nigeria

AN: A comparison of the effectiveness of two health education programmes in a cholera campaign in Nigeria; one using an individual approach and the other a community involvement approach.

Two rural communities, matched on socio-economic characteristics, were selected and an 'at random' survey was carried out, of

which no further description is given.

The individual education approach was used in one community and consisted of fieldworkers' home visits with photographic material on cholera and sanitation behaviour. In the other community, the community involvement approach was used and organized on 3 levels, namely extended family meetings, community association meetings (e.g. women's and religious groups) and general village meetings. All were addressed by the resident field worker and after a general discussion, a group decision was taken.

Both communities were exposed to mass media information through radio broadcasts, filmshows and posters.

After the educational programme, a vaccination campaign against cholera and health measures demonstrations were organized (food preparation and water boiling) and initial adoption rates were recorded. Two months later a survey was carried out in the two villages to measure the continued adoption of the practices. A decrease of 25 per cent in number of respondents was recorded; this was attributed to migration.

The initial adoption rates were higher for the community involvement approach than for the individual education approach (75 and 60 per cent respectively), but continued adoption (for practices only, as immunization is a so-called terminal adoption) showed even greater differences (73 per cent as opposed to 45 per cent).

Internal factors which were found to be positively related to adoption were: age under 45, married status, high income, literacy, high scores on "attitudes-towards-ill-health prevention", "concern about becoming ill" and "general adjustment of life" scales, a sense of personal vulnerability, greater knowledge of preventive measures in general and lower fatalism. Adoption was higher, however, for those who reported no previous ill-health experiences than for those who did (66 per cent as opposed to 49 per cent).

External factors found to be positively related to adoption were mass media exposure and social interaction characteristics.

Innovation characteristics were, in general, given a positive evaluation by the adopters; but 11 per cent adopted in spite of having a negative opinion on convenience of adoption.

KW: adoption of innovations, evaluation, health education, media and methods.

81. ORLEANS, L.A.; SUTTMEIER, R.P.
(Library of Congress, Washington)

The Mao ethic and environmental quality, *Science*, 170, (1970), pp. 1173-1176.

DA: 1950-1970

CO: People's Republic of China

AN: The vastness of the population and the primitive exploitation of nature in China has resulted in a highly degraded natural environment. During the 1950's many highly organized multidisciplinary expeditions, including geographers, geologists, hydraulic engineers, pedologists, foresters, agriculturalists and public health officers surveyed the country's tropical resources. The expeditions were institutionalized by establishing the Committee on Comprehensive Expeditions at the Chinese Academy of Sciences, which was also responsible for the planning of exploitive and curative management.

Research on specific measures for environmental improvement and responsibility for their implementation was delegated to the Ministry of Public Health, the Ministry of Labour's Institute of Scientific Research on Labour Protection and other ministries, the Division of Research on Labour Sanitation of the Chinese Academy of Medical Sciences and various universities and colleges.

The maoistic policy of frugality and the high priority of better health, coupled with the lack of curative facilities, led to the organization of the periodic national patriotic health campaigns, including collection of wastes and litter, pest elimination, and recycling of suitable products e.g. organic material for fertilizer as well as mass immunization and long range disease control campaigns.

Two examples of cleaning-up campaigns are the "spring patriotic sanitation movement" of 1970, organized by the local revolutionary committees and comprising the collection of litter and reusable wastes, clearing of local waters, elimination of pests and stressing of public health measures; and the "Shanghai muck-campaign" of 1969, a mass mobilization, of 90.000 industrial and agricultural workers to form dredging and transportation teams over a period of three months.

Although the authors agree that great achievements have been made in the research and practical work on environmental hygiene, they wonder whether or not the removal of labour from productive activities for ecological purposes is sometimes of a risky nature, e.g. diverting waste waters for irrigation, and the widespread discrediting of experts which could lead to unfortunate consequences.

KW: environmental research, mass campaign, planning, waste disposal.

see also: Akhtar, S. (ed.), Health care in the People's Republic of China: a bibliography with abstracts, International Development Research Centre, Ottawa, (1975), for further literature on environmental sanitation mass campaigns in China.

82. PACEY, A. (ed.)
(Oxfam, Oxford, England)

Water for the thousand millions, Intermediate Technology Development Group, Water Panel, Pergamon Press, Oxford, (1977), 58 p.;

also published as: Technology is not enough: The provision and maintenance of appropriate water supplies, Intermediate Technology Development Group, Water Supply and Management (Aqua) 1-2, (1977), pp. 1-58.

DA: -

CO: -

AN: The village water supplies in developing countries discussed in this paper are based on intermediate technologies as introduced by Schumacher. But apart from functional appropriateness, the supplies should be based on other complementary goals and criteria: environmental, social, health and economical.

Four levels for improving water supplies are distinguished (and summarized in table 1): First, immediate objectives are described with improved water quantity and quality, water availability and supply reliability, and avoidance of negative social, economical and environmental consequences such as lack of user support, heavy strain on scarce resources, lowered water tables and increase in mosquito breeding places. As stage I objectives some health, economic and social improvements are added (reduction of water borne and based disease, time/energy savings water for livestock and irrigation, and stimulation of local interest in health and economic benefits). For stage II some more health, social/technical and economic objectives have been added (reduction of water washed diseases, supply maintenance and use of time/energy savings and improved water availability for productive purposes). This development should finally culminate in the realization of stage III: self-sustained universal village development.

For each stage, a number of criteria of appropriateness are derived from the objectives: technical, social and environmental. For the immediate improvement stage these criteria are technical fitness for the purpose, hydrological conditions, avoidance of environmental damage, presence of felt needs and stated preferences, scaling in relation to community size, organization and labour and capital and labour intensity, import bill, fuel consumption and scale economy. For stage I objectives, the above criteria are extended with data on water-borne diseases and water quality, changes in water carrying and use practices, and creation of interest in health, hygiene and other development. For stage II objectives, the criteria are data on water washed diseases, water quantity and availability, organization, administration, division of village/government responsibilities, spare parts supply, training, record keeping and maintenance, and the amount of time/energy and volume of water available for productive purposes.

Technical, social and economic appropriateness are then discussed in detail, with many examples from projects from developing countries. With regard to technical appropriateness, the authors stress the improvement of water quantity rather than quality, with more flexible standards for the latter; the use of cheaper methods and materials in water engineering and adaptations to climatic, microbiological and chemical conditions. A number of solutions are suggested.

Under social appropriateness, not only water use patterns are discussed, with emphasis on the design of supplies which lead to the fullest benefits in health and time/energy savings through changed water consumption and use, but also specific needs, e.g. for communal laundry facilities, and the necessity to seek local opinions on siting and payment. Two tests for social appropriateness of a supply are its maintenance and impact on further development. Proper introduction of the project and through local consultation in the planning phase are essential. Examples are given of projects which were successful, or unsuccessful, for social reasons. Community participation is advocated but the authors warn against frustration from unrealistic workloads and potential disadvantages (poor standard of construction, inefficient allocation of central government inputs of money, skilled personnel, tools and machinery). The authors note a lack of government support for individual water improvements and the lack of a clear government policy on continued local participation (insufficient legal status for village committees, absence of local government structure, lack of definition and division of responsibilities and lack of training of villagers for maintenance).

Finally, economic problems of capital and labour, scale and service, recurrent costs and optimum size are discussed, resulting in the recommendation of an upper limit to projects of around 3000 people, for reasons of combined social and economic appropriateness. Small scale irrigation is also advocated.

In their conclusions, the authors add suggestions for the development of standardized equipment and tool-kits and components for specific kinds of water supplies, as well as training of "barefoot water technicians", preferably people with some basic technical knowledge, e.g. fitters, surveyors and public health officers, while in some countries training should concentrate on women.

KW: administration, design, evaluation, felt needs, health and economic impacts, maintenance, training.

83. PADFIELD, H.

(Institute for Development Studies, University of Nairobi)

Issues in development research: the case of water in Kenya, paper presented at the Workshop on Strategies for Improving Rural Welfare, May 31 - June 3, 1971, Institute for Development Studies, University of Nairobi, 107, (May 1971), 20 p.;

also published in M.E. Kempe, L.D. Smith (eds.), Strategies for Improving Rural Welfare, proceedings of a Workshop held at the Institute for Development Studies, University of Nairobi, May 31 - June 3, 1971, Paper 4, (1971), pp. 451-472.

DA: 1968-1974

CO: Kenya

AN: The relation between policy and science is discussed with regard to the water development programme in Kenya. Numerous and varying water systems exist, on which no regular feedback is available, while a water development policy is becoming an operational reality. This policy is based on the social and political situation and defines water development schemes primarily as human impact programmes.

The role of the scientist is limited to assisting the planners in forming a policy rationale. This rationale will be biased by the type of science involved (economics, sociology, anthropology). In Kenya the present rationale is a macro-economic one, which defines water development as production impact programmes.

The author distinguished four biases from this contradiction between policy (human impact programmes) and policy rationale (production impact programmes):

(1) An over-emphasis on the singular importance of water development expenditures for economic development, which is not borne out by the actual number of schemes and the number of people these schemes have to serve. Nor is it apparent from the planned and actual proportions of the total budget spent on water, which were 4.04 and 1.99 per cent for 1968/1969 respectively, and should be 4.47 per cent in 1973/1974.

(2) The use of economic cost/benefit criteria to develop decision rules for the implementation (and evaluation) of policies which are the consequence of welfare norms and social demands. The use of before-after studies in time and motion to measure production benefits is criticized for its relatively high costs.

(3) The emphasis on production as the prime objective of water development. The concept of "released time" is attacked, as actual results of a piped supply could be more leisure or open unemployment and, at the best, an equal quantity of water for the water haulers, who usually belong to the lower strata; while their employers from the higher strata will get equal and often larger quantities of water and save cost of wages.

(4) The use of areas as a basic concept for water development programmes and impact studies, while ignoring the sociology and micro-economics of beneficiary populations. In low as well as high potential areas microstrata of poorest, poor, less poor and less less poor people will exist, causing competition for benefits.

A hypothetical case is used to illustrate the effect of production oriented selection criteria for scheme allocation and a social welfare oriented design (with e.g. low per capita capacity and non metered house connections) on the operation and maintenance of the scheme.

The author stresses the importance of broad interdisciplinary social science research, studying differential impacts on various institutions, socio-economic classes and economic activities. The existing roles in the distribution system (haulers for self, for self as well as others, and employers of haulers) and existing water consumption patterns should be studied and compared, taking into account other status classifications (age, sex, kinship, ceremonial position, political and economic position, occupation, size and type of farm, etc.) He also advocates the development of selection criteria for class or behaviour specific schemes, rather than area specific schemes, such as need criteria, social stability and cost criteria.

KW: economic and social impacts, inequity, planning, research
rural water supply, selection criteria.

84. PATNAIK, N.
(Utkal University, Orissa)

Digging wells in Barpali, Orissa: an experience in rural re-
construction, *Man in India*, 4, (1961), pp. 83-99.

DA: 1953-1954

CO: India

AN: A case study and evaluation of the construction phase of a project for improved village wells in Barpali, Orissa, India. Initially, 12 wells were to be built through self-help activities with a fixed amount of financial assistance from the state government and an emergency fund for extra costs, such as rock blasting, and technical assistance from a non-government agency, the American Friends Service Committee. The number of planned wells increased to 19 when some neighbouring villages joined the scheme on their own initiative.

A remarkable feature is the variety in arrangements for labour contributions made by the participating villages. In the first place, the traditional local structure of six work teams was used. A schedule was prepared every evening in the presence of all villagers, distributing self-help and income generating activities over the six groups. Secondly, daily work teams were organised by a well committee with voluntary and hired labour and with the use of a religious symbol as a mark of assignment to ensure a satisfactory labour output. There were also cyclic arrangements for free labour from each family, as well as the organisation of six subgroups of ten labourers electing their own leader. Qualification for leadership were prominence in local theatrical and religious music activities, a mediating role in village conflicts and a reputation for impartiality of judgement. Hired labour from fixed subscriptions per family and a food-for-work programme for labourers and their families were still other forms of organisation.

Special factors promoting village participation in the project were: the building up of a reliable water reserve against fires; which were frequent, inter-village competition and the prospect of doing away with existing social access problems. Local political conflicts and the by-passing of a politically influential traditional medical practitioner were constraints.

The lack of a pre-planned policy of administration and implementation in the construction phase and the absence of a

dialogue between villagers, project staff and government officials in the early stages of the project, led to misunderstandings about the exact amount of work expected from the villagers, e.g. rock breaking and well-lining as well as digging. Uncoordinated construction activities made voluntary labour more costly than work under contract. There was confusion about government assistance, which was expected to be in cash, but finally given in kind when (halfway through the project) the villagers were asked to sign an agreement defining the responsibilities of the parties. The author concludes that the higher cost of voluntary labour, compared with the daily output of workers under contract, was compensated by its social benefits. Knowledge of the social composition of the village (the existence and operation of castes, the traditional forms of voluntary organization, the character of local leadership, the points of divergence, etc.) is needed for the identification of resources and constraints. Transfer of technical knowledge should be a continuous on-the-job affair. Labour requirements, like digging to a specified depth, breaking and hauling of stones and advance stocking of local materials at the site, should be agreed upon and a staged outline of the programme should be given several times before actual construction is started. Village workers, or outside experts should make sure that the well is a high priority in the community. Mistrust of government officials should be overcome by on-the-job contacts, fewer formalities and more flexible rules. Information on successful projects could be diffused by translating it into traditional verse, by showing photographs and slides of the various stages of these projects, and by using traditional storytellers.

KW: communication media and methods, constraints, extension, implementation organizational structure, planning.

85. REPUBLIC OF PERU
(Ministry of Health)

Manual de promocion de comunidades, Ministerio de Salud, Plan Nacional de Agua Potable Rural, Lima, Peru, (1977), 38 p.

DA: -
CO: Peru

AN: The promotion of a water supply system in the rural communities is an essential part of the National Plan for Rural Drinking Water. It aims to make communities aware of drinking

water as one of their basic needs, and to mobilize their organized participation in the construction, operation, maintenance and administration of a piped supply system.

A guideline is developed for the fieldworkers, in particular the promotor, to realize the unification of the promotion procedures within the particular socio-economic and cultural context of the individual communities, to bring about a systematic approach, to serve as a tool for evaluation, and to perfect initiation methods and work strategies, so that an optimal participation of the community will be obtained.

After the selection of the communities (based on technical criteria, the use of natural resources, the number of people served and the existing supply situation) a preliminary study is made. This deals with the felt needs in general and the perception of water as a problem in particular, existing supply particulars, outside contacts and communications, and requests for assistance from the community. At the same time some basic general information on the need for better drinking water and community participation is given. The willingness of the community to contribute is investigated and previous experiences in self-help are assessed from records, authorities and neighbourhood interviews. The channels for village communication are identified and preparations are made (through the village leadership and a general assembly) for the socio-economic studies of the community. A village map and housing plan is drawn up, and the village leaders and a 20 percent household sample are interviewed with the use of standard questionnaires.

An administrative committee is elected by the adults of the community in a general assembly. The assembly is organized by the village authorities with the assistance of the promotor, who has collected the necessary background information and carried out specific field activities. The size of the committee is determined by the community, and members serve as unpaid officials. The term of office is indefinite, but a new election is possible every two years. When no immediate decision is reached by the community, more motivational meetings are held. The committee is officially installed and initiated into its tasks by the promotor. The responsibilities of the members include the collection and registration of financial contributions according to the rate agreed upon by the community and recorded in the community contract, the signing of individual contracts for house connections by the households and the acquisition (by donation or purchase) of the land for construction. They are also in charge of the organization of voluntary labour (if necessary through sub-committees) and the collection and transport of local materials, the organization of the inauguration ceremony, the signing of the deed of conveyance, the administration, operation and

maintenance of the system according to the statutes and regulations of the Sanitary Engineering Division of the Ministry of Health, account and record keeping, the selection of an operator/administrator, the collection of the monthly water rates and the control of the maintenance of the house connections. The calculation of the rates based on the various costs and the socio-economic conditions in the community is explained to the community. Its agreement is recorded in the deed of approbation.

Promotion activities during the construction phase include, the establishment of a timetable in cooperation with the administrative committee, the agreement on village sanctions against defaulters and the stimulation of the formation of a ladies' committee, which is to provide food and drink for the voluntary workers and organize activities for fund raising. Other such activities are assistance in financing activities, promotion of house connections, the organization of the ceremony for the official conveyance of the system, and promotion of and education on the proper use and maintenance of the house connections and the regular payment of the rates. Group meetings and dialogues with individual households are held to emphasize the sanitary value and promote the rational use of water.

KW: administration, extension, felt needs, financing, operation and maintenance, research, selection criteria.

see also: PINEO (1976c)

86. REPUBLIC OF PERU
(Ministry of Health)

Principales funciones de los auxiliares de promocion de comunidades, Plan Nacional de Agua Potable Rural, III Etapa, Ministerio de Salud, Direccion de Ingenieria Sanitaria, Division de Obras, Departamento de Promocion de Comunidades, 1977, ETL/vch, (13.6.1977), 4 p.

DA: -

CO: Peru

AN: A manual in which the tasks of auxiliary promoters in the organization of the construction of a rural water supply system are summarized. The auxiliary promotor, who usually is a member of the community, serves as a mediator between the water agency and the community, providing information to the community and motivating the community to participate actively in the construction phase.

Before construction he is to carry out a socio-economic study of the population, to determine the ability of the various households to contribute towards payment of construction and connection costs and the water rates. He is to determine the sites for house connections and make a map of the village. He has to assist in the formation and installation of an Administrative Committee for Drinking Water during a public assembly. Other tasks are advising the Administrative Committee on the donation of land for the construction of the supply, motivation of the community to sign a contract, giving information about the required amounts and collection of local materials and assistance in the organization of fund-raising activities.

During the construction, he and the administrative committee are responsible for the organization of community labour for nonspecialized construction activities, the collection of financial contributions according to the agreed schedule, the signing of the individual contracts for house connections, the instruction of the members of the administrative committee in record and account keeping and the periodic information of the population through assemblies, public meetings of the administrative committee and other diffusion channels on the progress of the work and the state of the users' contributions.

At the end of the construction activities he verifies whether the contract with the community has been carried out completely, including all financial arrangements. He assists the administrative committee in the selection of the appropriate person for the professional administration of the completed system. Together with the administrative committee he organises the introduction ceremony. He assists in the use of the manual for system operation and the plans for replacement. Finally, he checks the organization of a record system of the administrative committee.

KW: administration, communication, financing, implementation, manpower operation, research, training

See also: PINEO (1976c)

87. PINEO, C.S.
(Pan American Health Organization)

Story of a successful national rural community water supply programme in the Dominican Republic - PLANAR, Pan American Health Organization, Pan American Sanitary Bureau, Dominican Republic 2200, (25 March - 24 April 1973) (1973a), 24 p.

DA: 1961-1973

CO: Dominican Republic

AB: One of the most successful rural community water supply programmes in Latin America is the Plan Nacional de Acueductos Rurales (PLANAR) in the Dominican Republic, where from 1965 till 1973 150.000 people in 150 rural communities, with a population varying from 300 to 5000 inhabitants, had been served (circa one quarter of the ultimate goal). The plan is one of the activities of the Instituto Nacional de Aguas Potables y Alcantarillados (NAPA).

After discussing the organizational structure, financing and costs, a number of factors contributing to the success of the programme are listed, including definite and continued government support and a high level of enthusiasm at national, zone and local levels. The continued evaluation and adaptation of the responsible administrative structure is illustrated by the three interdepartmental transfers of the rural programme, the division into four zones, and the expansion of promotion activities. Problem identification through a survey in a great (but unspecified) number of the 2803 rural communities served to determine the accessibility of towns, the concentration of houses, the availability of satisfactory water sources, the availability of electricity, communication facilities, and the availability of construction materials. This survey resulted in the selection of 650 communities, which were subsequently given priorities one to four, according to their sanitary and socio-economic conditions (supply need, condition of existing service, popular interest and support). Other factors were the use of 16 specially trained promoters at zone level for administration and maintenance assistance, 20 at local levels for the organization of community assisted supply construction and the introduction of the programme, and assessment of its chances of success by an engineer and promotor. They checked the adequacy of the source in terms of quantity and social acceptability, the willingness of the community to pay and assist during construction, operation and maintenance and the selection, organization and functioning of the local water supply committee. Four zone offices were established based on population distribution, natural features and the specification of their responsibilities. These included programming, organizing, directing, coordinating and controlling of INAPA activities in the zone; collaboration with the Central Office in the preparation of plans and programmes; promotion, organization and assistance of the local Water Supply Committees during construction, operation and maintenance; the provision of training and advice to the personnel at zone and local level; the control of water sample taking and

the carrying out of central office water quality recommendations; checking and deposit of water payments; progress evaluation and monthly reporting to the Central Office and keeping a small repair stock at zone level. The programmes benefited from the introduction of various cost and time saving design and construction materials, optimal grouping of communities, the use of contractors, development of local supply lines (pcv factories, engineering offices) and careful scheduling of designs, materials, equipment, organization of local communities and construction work. There was a strong emphasis on efficient operation, maintenance, administration and financing and on continued liaison and supervision among hierarchical lines of authority. The programmes were flexible, with repeated adaptations in design, construction, administration and promotion. The link with the World Food Program provided food-for-work (one ration for four hours) during construction. Intermediate targets were established for the various departments and sections involved in PLANAR. There was continued attention to health e.g. through chlorination, with regular quality checks on samples sent to the agency's own laboratory, resulting in recommendations for local corrections. A revolving fund was used, made up of government budget funds, contributions by national and international organizations, and local payments, based on a flat rate. One part was used for local operation and maintenance, while of the other part 60 percent went to zone level for administration costs of the rural systems and 40 per cent of the revolving fund. A final positive factor was the training of staff at all levels, especially the promoters. One week pre-training indoctrination in the Central Office is followed by three months in-service training by an experienced promotor, covering technical, sociological, organizational and administrative aspects. Promoters, in their turn, train the members of the local supply committee in the administrative aspects of their duties, including motivation for supply connections, water conservation, prevention of pollution, and regular payment. They also train the local operator responsible for the functioning of the system. Periodic refresher courses are organized.

KW: administration, cost evaluation, extension, financing, maintenance, operation, organizational structure, selection criteria, supervision, training.

see also: PINEO (1973b, 1976a)

88. PINEO, C.S.

(Pan American Health Organization)

Additional comments on the national rural water supply plan of the national institute for water supply and waste disposal of the Dominican Republic, supplement to the Report story of a Successful National Rural Water Supply Programme in the Dominican Republic: PLANAR, Pan American Health Organization, Pan American Sanitation Bureau, Dominican Republic, (25 March - 24 April 1973) (1973b), 8 p.

DA: 1961-1973

CO: Dominican Republic

AN: In a supplement to the report highlighting elements that contributed to the success of the rural water supply programme in the Dominican Republic, some aspects are pointed out which may impede the complete success of the programme. The suggestions and recommendations made include the formulation of further national plans which include sewage and surface water disposal programmes, starting with the urban areas and the rural areas already covered by PLANAR, a greater emphasis on supervision during construction, operation and maintenance through the agency's hierarchical structures, more efficient stock keeping of spare parts and equipment, analysis of the causes of delays in ordering and delivery of materials and in the contracting process, improvement of water rate collection through better incentives, supervision on collection and more direct action by promoters, a close liaison between the national planning office and INAPA for continued medium and long range planning, and finally coordination of the laboratory work of INAPA and the Secretaria de Salud Publica to make the control of water quality even more effective.

KW: evaluation, organizational constraints, planning, waste disposal.

see also: PINEO (1973a, 1976a)

89. PINEO, C.S.

(WHO Division of Environmental Health)

Dominican Republic: history of the rural water supply and sanitation, observations of the Rural Water Supply and Sanitation Programmes in 8 Developing Countries (Draft), World Bank Documents, 1976-1977, World Bank, Washington DC, (1976a).

DA: 1961-1975

CO: Dominican Republic

AN: In 1961 it was estimated that 43 per cent of the urban and 82 per cent of the rural population lacked an adequate water supply. Therefore the Instituto Nacional de Aguas Potables y Alcantarillados (INAPA) was set up to carry out a national water supply programme. In 1964, a separate programme for the rural areas, PLANAR, was initiated to provide house or patio connections for over 850.000 people in 650 villages by 1985. By the end of 1976, 272 villages will have been served.

The Central Office at Santo Domingo is responsible for the planning, coordination, design and studies, purchase of material and equipment, development of standards and manuals and promotion activities. The implementation of the programme is carried out by six (formerly four) zone offices, and is based on community participation in construction, administration, operation, and maintenance. Selection criteria are accessibility of towns; concentration of houses; availability of satisfactory resources; interest of people in obtaining a supply and cooperation in construction (labour and local materials amounting to circa 10 per cent of its costs), operation and maintenance (flat rates, which can be adapted to the village financial capacity with administration by a local committee).

When a request from a community has been granted by INAPA, an administrative committee consisting of a chairman, secretary, treasurer and two members is elected by the community, assisted by a promotor from the Central Office. Engineers and auxiliaries also get training courses in techniques of promotion and health education to supplement the promoters' activities. A contract is signed by the administrative committee and INAPA, specifying the obligations of both parties during the construction, operation, and maintenance phases. The supply is constructed with local voluntary labour and materials, organized by the committee and supervised by the promotor, experts from the zone office and contractors, under continued supervision of the assistant engineer and the promotor who, in their turn, are supervised by the zone engineer and occasionally by the construction department of the central office.

When the supply approaches completion, a commercial agent based at the zone office takes the place of the promotor for the instruction of the committee on its administrative responsibilities, like reporting, accounting and supervision of operation and maintenance. Each commercial agent is responsible for 15 systems which he visits monthly on four scheduled routes. His responsibilities are: to audit the books with the treasurer; to collect and forward excess money through the local post office to the revolving fund at the zone office; to meet with the administrative committee to discuss problems and matters of interest; to report observations and recommendations to the zone office, and to accompany the treasurer or bill collector on home visits to non-payers in an attempt

to improve the disconnection percentage of about 33 per cent. These efforts resulted in a payment of 92 per cent of the bills sent out in the first half of 1975.

An outstanding feature of the programme is its continued evaluation, which has led to the formation of 6 instead of 4 zone offices, the addition of commercial agents for post-construction liaison and the standardization in designs and forms. Villages and houses were grouped together to share supplies, administration and house connections. This led to lower costs, ease of inspection, and convenience in contracting and supervising operation and control. A personal-visit campaign for non-payers took the place of outright suspension.

A special programme for the urban fringe area of Santa Domingo has recently been set up to reach the outskirts and backstreets of the capital. The aim is to convince users of the bad state of their systems and encourage them to contribute towards an operation and maintenance fund. Promoters are employed to organize committees. Storage tanks with public hydrants either connected to the city supply or filled by water tankers have been planned and will be extended with public baths and toilets after evaluation of the community participation component.

Between 1971 and 1975 a sanitary privy programme covered 80 per cent of the rural population. It was organised by the Pan American Health Organization and the Environmental Sanitation Division of the Secretaria del Estado de Salud Publica y Asistencia Social, who provided slabs and risers, as well as health education, while the owners had to dig the hole, install slab and riser and build the protecting shelter.

KW: administration, evaluation, excreta disposal, extension, financing, health education, operation and maintenance, organizational structure, planning, selection criteria, supervision, training.

see also: PINEO (1973a, 1973b)

90. PINEO, C.S.

(WHO Division of Environmental Health, 13, 2p)

Bangladesh: history of rural water supply and sanitation programs, observations of the Rural Water Supply and Sanitation Programmes in 8 Developing Countries, World Bank Documents, World Bank, Washington DC, (1976 b)

DA: 1946-1976

CO: Bangladesh

AN: A review of the development of tubewell programmes in

Bangladesh, which began in 1946/47 when 50.000 tubewells existed, 12.000 of which were choked up. Since the mid-1960's UNICEF has been involved in these programmes, resulting in a massive government/UNICEF partnership effort since 1972, in which UNICEF is providing equipment and personnel. By the end of 1975, there were 280.000 shallow wells (30.000 out of service), 5.000 deep wells and 5.000 deep-set wells. The average number of people served per tubewell was 334. For 1979, 60,000 new tubewells have been planned in addition to a shallow well programme for primary schools and urban areas not yet served by a piped supply. This should bring the average number of people per well down to 150.

The programme is carried out under the responsibility of the Directorate of Public Health Engineering (DPHE) in the Ministry of Local Government, Rural Development and Cooperatives, with a high degree of decentralization. At the lowest administrative level are the 4.6000 Unions. Inhabitants of the 65.000 villages may apply to a Union Site Selection Committee for a tubewell. The village has to deposit 50 per cent of the cost of a shallow well or 25 per cent for a deep well with the Union Chairman and to sign a contract. There is no need for promotion, as the procedure is well known. The Union Site Selection Committee develops a list of needs, and its chairman together with the Sub-assistant Engineer from the next level, the Thana, apply to the Executive Engineer at District Level, for their list of requirements. The executive Engineer consolidates the requests from all the Thanas, passing them up through the Divisional Office to the National Office of the DPHE where allocation on a national basis is determined.

Selection criteria are: the existing distribution of tubewells, hydrological suitability, density of population, the desirability of at least one improved supply per village.

Construction is by authorized contractors who sign a contract with the DPHE for between 20 and 60 wells. Construction by the villagers themselves was begun under the second Five Year Plan (1960-1965) under the Basic Democracies (with the creation of Union Councils) but it was abandoned when the programme was stepped up with Unicef assistance in 1971. The reasons were a low rate of construction and low standards due to lack of supervision.

After completion, the village appoints a nearby householder to watch over each tubewell and pump. No water rates have to be paid. Maintenance is carried out by four mechanics per Thana who are supplied with toolkits and routine spare parts. The Union Council pays for the parts used. In the near future, maintenance will become the direct responsibility of the beneficiaries them-

selves, with the government retaining overall responsibility through the Thanas. The silting-up of the wells remains a problem, but it has dropped from 30 per cent in 1970 to 15 per cent in 1975, so that reconstruction can keep pace with this problem.

Some details on financing and training are given. Health education is included in the three day training courses in 60 centres for the 1600 mechanics of the Thanas, but there is no information on any organized health education activities in the villages.

A survey in 2400 villages taken at random from most of the country, revealed that 65 per cent of the families used tubewell water for drinking purposes, that 61 per cent lived within 250 yards of a tubewell, and 9 per cent over half a mile, and that 83 per cent of the tubewells were operating.

A national sanitary latrine programme has been initiated with a pilot project in a few villages to test the acceptability of the latrine designed for the programme. The materials are given to the householder who is then responsible for the digging, installation and construction of the superstructure. A health educator assists in siting and construction, besides providing information on the necessity of the latrines and their correct use and maintenance.

KW: evaluation, excreta disposal, extension, health education, implementation, maintenance, organizational structure, planning, selection criteria, training.

91. PINEO, C.S.
(WHO Division of Environmental Health)

Peru: history of the rural water supply and sanitation program, observations of the Rural Water Supply and Sanitation Programmes in 8 Developing Countries (Draft), World Bank Documents, 1976-1977, World Bank, Washington DC, (1976c).

DA: 1961-1975
CO: Peru

AN: A national study of rural water supplies and of a multi-agency demonstration project started in 1961 led to the design of a national rural water supply programme, under which 661 systems in 753 small towns and villages had been built by 1975. Each system is operated and maintained by an Administrative Committee.

Responsibility for the planning and implementation of supply programmes lies with the Ministry of Public Health. Its Central Office has six divisions: the Project Division, responsible for studies and designs including standard designs which are also based on experiences in operation and maintenance of existing systems; the Promotion Division, employing 8 promoters who assist in forming the local Administrative Committees and supervise auxiliary promoters from the communities; the Works Division, assisting in drawing up contracts between the community and the government; the Supervision of Services Division, which is in charge of the house connection campaign, calculation of water rates, assistance in extensions and repairs, and analysis of returns; the Water Quality Control Division; and the Administrative Unit, responsible for the purchase of equipment and the general administration.

Selection criteria for projects are: the interest of the community as indicated by a written request and an offer to provide local labour, material and cash and to assume responsibility for the administration; availability of a reliable source and a project benefiting the greatest number of people at the lowest cost.

Activities at village level include the formation of a local administrative committee and the organization of self-help labour under supervision of the promotor and field engineer, as well as a socio-economic and population survey. This is carried out by auxiliary promoters, who are selected from the community and paid from the project's construction funds. The duties of the promotor for the time of construction only and of the auxiliary promotor are laid down in a manual. On the acceptance of a formal village request (which may take 3 to 4 years), a design and estimate of costs, expected village contributions (10 to 15 per cent) and water rates (based on operation and maintenance costs in relation to the financial capacities of the community) is made by the Central Office and presented to the community through the administrative committee. After discussion, a contract is signed between the Sanitary Engineering Office of the Ministry of Public Health and the community, defining the responsibilities of both parties. Monthly reports on the construction are sent to the Central Office.

Operation and maintenance are carried out by the Administrative committee under supervision of a health inspector who reviews its accounts every three to four months, while the Supervision of Services Department of the Central Office may assist on their request. No central supervision is carried out, however. About 50 per cent of the users are behind in paying the rates. Therefore, it is suggested to form an association of administrative committees with annual meetings and to develop a training

programme on administration and operation for its members.

KW: administration, design, evaluation, extension, financing, maintenance, operation, organizational structure, planning, selection criteria.

see also: REPUBLIC OF PERU (1977)

92. PINEO, C.S.

(WHO Division of Environmental Health)

Colombia: history of rural water supply and sanitation programs
observations of the Rural Water Supply and Sanitation Programmes
in 8 Developing Countries (Draft), World Bank Documents, 1976-
1977, World Bank, Washington DC, (1976d)

DA: 1968-1975

CO: Colombia

AN: In 1974 a national sanitary survey was carried out by the Ministry of Public Health to catalogue villages with 50 to 2.500 inhabitants, to determine their accessibility, total population, sources of water supply and health conditions and to identify the existence and conditions of services, including water supply, excreta disposal, electricity and institutions (schools, health centres, community action groups and cooperatives).

It was found that 42 per cent of this population had a satisfactory water supply. Only 10 per cent had sewage disposal systems. For the dispersed rural population these percentages were estimated at 25 per cent and 15 per cent respectively. Urban house connections had increased from 73 per cent in 1970 to 75 per cent in 1975, while the percentage of people served by public hydrants had not changed. Easy access to water in all rural areas increased from 30 to 33 per cent in the same period, but progress was found to be barely keeping pace with population growth. A problem has been the non-allocation and delaying of budgeted funds (only 47 per cent of the total yearly budget was received in 1974, with an additional 16 per cent during the first quarter of 1975).

As a result of a decentralization policy, the National Institute of Health (INAS, formerly INPES) was created. The Division of Basic Rural Sanitation was made responsible for the rural programmes.

The Central Office is responsible for planning, programming, evaluation and supervision. It has three sections, one for stu-

dies and construction (manual and guideline preparation programme planning and scheduling, design standards and approval, purchases and distribution of material, coordination of construction activities), one for supervision and technical assistance of the sectional offices responsible for programme implementation, and one for promotion (promotion manual, preparation and inservice training, advice and community motivation and organizational processes).

The 24 Sectional Offices at state level have three departments. The engineering department carries out local studies, surveys, designs and plans for approval by the Central Office, supervizes construction activities, calculates water rates based on loan repayment schedules which are adapted to the financial capacities of the community, with a maximum of 20 years at 6 per cent interest and supervizes the administrative committee responsible for operation and maintenance. The warehouse department is responsible for purchase, storage and issue of material and equipment. The promotion department carries out sanitation and socio-economic studies at village level, assists in community organization, setting up an administrative committee of which the promotor is the secretary, presents the water supply contract, coordinates the activities of the administrative committee and supervizes local contributions toward construction, participates in turning the system over to the community and continues to function as the secretary of circa 10 to 15 local administrative committees, thus ensuring a continued liaison with the sectional office for operation and maintenance. Most promotors have been sanitary inspectors, so they are well versed in the techniques of health education, but no details are provided on this aspect of their task.

At the village level, the community sends in a request for a supply to the INAS and upon approval organizes an administrative committee with the aid of the promotor. Most villages already have a Community Action Committee, which facilitates community organization for contributions toward the construction. Usually a member of this committee is elected to serve on the administrative committee as well.

The Administrative Committee is responsible for the cooperation of the community. It issues receipts to each person contributing towards the construction in labour, transport or material, which can later be used as a credit toward paying for the cost of a house connection. The members of the committee are trained by the engineer and promotor. An operator, plumber and collector are appointed. The operator is responsible for the operation and maintenance of the system, and the construction of house connections, and may collect the water rates at the request of the Administrative Committee. The promotors supervize the

operators and Administrative Committees of 10 to 15 systems, auditing books, preparing monthly reports and checking on deficient rate payers.

The disposal of excreta is also the responsibility of the Division of Basic Rural Sanitation of the INAS, but simple installations are assigned to the Department of Environmental Sanitation of the Ministry of Public Health. Since only 20 per cent of the rural homes has some type of sanitary waste disposal, new cheap and simple types of latrines have been developed with local industry. They can be installed by the householder himself. Efforts are now concentrated on the promotion of these latrines and on health education. Campaigns are organized by sanitation promoters, who provide health education, advise on the site and size of the pit, give details on the installation, and provide the latrines, of which the owner pays 20 per cent. No details on the health education programme are included.

KW: administration, excreta disposal, extension, financing, implementation, operation and maintenance, organizational structure, planning, supervision, training.

see also: MORA RAMIREZ and LOPEZ OROZCO (1976),
REPUBLIC OF COLUMBIA (n.d.), and
WHO/IRC (1978).

93. PINEO, C.S.
(WHO Division of Environmental Health)

Korea: history of rural water supply and sanitation program,
Observations of the Rural Water Supply and Sanitation Programmes
in 8 developing countries (Draft), World Bank Documents,
1976-1977, World Bank, Washington DC, (1976e) 12 p., 3 ann.

DA:-
CO:-

AN: The rural water supply programme in Korea was begun in 1967 by the Ministry of Health and Social Affairs (MOHSA) and is characterized by an increasing degree of community participation. From 1967 to 1971 4 per cent of the construction cost was borne by the villages, in 1976 this percentage had increased to 61 per cent. In the future financing will be influenced by a World Bank loan for a Rural Infrastructure Project, and aid from the World Food Program till 1980.

Village requests for an improved supply pass through one of the 198 country offices and 9 provincial offices for final selection at the Environmental Health Section of MOHSA. Selection criteria are prevalence of water borne diseases, need for an improved supply and suitability of available sources and willingness and capacity of community to pay. Responsibilities at the national level are the development of guidelines and standards, long range and annual programme planning and budgeting, preparation of monthly and annual progress reports, fund allocation through provincial and country offices (the allocated funds are grants to the village), infrequent supervision at provincial, county and village level (spot-checking at village level during construction 10 to 12 times per year, during operation and maintenance 3 to 4 times a year), auditing of provincial and county accounts, issue of yearly water quality control measures, furnishing of equipment and part of the materials, financing of circa 23 per cent of other materials and supervision of sanitarians responsible for programme implementation at the county (198) level by an engineer from the construction section. These sanitarians receive a 6-month training course at the National Institute of Health, which includes the actual design and construction of a system as used in the field, and a 3-week course on Operation and Maintenance, to instruct the village maintenance committee and village operator.

The provincial offices channel requests and funds, spot-check designs of local systems, audit county books and analyse water quality samples sent by the sanitarians.

All studies and designs are carried out at the county level, with 50 per cent of the designs made by engineers of the construction section, and less than 50 per cent by consultants hired by the villages to speed up the process, while simple systems may be designed by the sanitarian. No special supply promotion takes place, though some extension activities may be carried out by Social Affair workers and Health Centre personnel. Examples set by other villages are the main method of diffusion.

Construction at the village level is the responsibility of the water committee set up within the existing Community Action Committee under supervision of the sanitarian, who trains them in construction procedures and use of plans. The committee raises the greater part of the money and part of the materials, organizes the voluntary unskilled labour and local transport, and hires and finances the skilled labour needed. The system includes house connections for all who participate in the capital costs of the system. Poor households rely on neighbours. After completion, a water supply maintenance committee is set up which is responsible for setting specific village

rates covering operation, maintenance and depreciation, filing and collecting and employment of an operator trained by the sanitarian and provided with a simple manual. The more than 400 sanitarians can supervise between 2000 and 3000 systems, taking regular quality samples for analysis at the provincial level. The use of these semi-professionals has contributed significantly to the success of the programme. They have received practical training for technical assistance to the villages in all phases of the programme, are supported and supervised by well qualified engineers and are assigned at the county level for a better continued contact with the villages.

No specific data on the rural excreta disposal are given, except that primitive privies are generally used. One of the few programmes for improved excreta disposal was a septic tank composting demonstration project.

KW: administration, cost, design, extension, financing, maintenance, organizational structure, selection criteria, supervision, training.

94. PINEO, C.S.

(WHO Division of Environmental Health)

Upper Volta: history of rural water supply and sanitation programs, in Observations of Rural Water Supply and Sanitation Programmes in 8 Developing Countries (Draft), World Bank Documents, 1976-1977, World Bank, Washington DC, (1977).

DA: 1977

CO: Upper Volta

AN: A report on the organizational set-up for rural water supply programmes in Upper Volta, where 94 per cent of the population live in rural areas. The rural settlement pattern is widely dispersed because the alluvial river plains are avoided for their high incidence of river blindness and sleeping sickness and the traditional dug wells have a low water yield.

To assess water supply needs, 7.425 villages were surveyed for water supply conditions, of which 17 per cent was found to be satisfactorily served. 2.700 wells in 1500 villages needed to be deepened and 63 per cent lacked any type of protected well. Very few wells were equipped with handpumps, where these were not likely to be properly maintained, they were not installed at all.

At the request of the villages, projects are identified by

the eleven Regional Offices for Rural Development, who prepare lists of wells for approval at national level. Theoretically, they should also implement, operate, and maintain the approved supplies, but because of the lack of staff and funds, this task is carried out by the Directorate of Hydraulics and Rural Equipment (HER) of the Ministry of Agriculture, which is also responsible for designs, village studies, fund allocation, programme planning, guidelines, technical inspection of completed wells and records on all wells dug by any agency.

Community participation is limited to the construction of dug wells. Here the villagers are to dig until rock or water bearing layers are reached and provide gravel and sand. HER assists with 3 mobile brigade teams for digging and drilling and one mason for training and supervision.

One operation and maintenance brigade answers calls for assistance, but funds for spare parts are lacking. The Regional Offices for Rural Development felt that villagers would be willing to pay a small contribution towards maintenance, but this had not been investigated.

At village level there is no responsibility for operation and maintenance, apart from one case where a caretaker locked the pump except for certain hours every day.

In the field of excreta disposal projects there is very little activity, with one pit latrine project of UNDP and the Project Accès des Femmes à l'Education, which experienced design and construction problems (cave-ins) and destruction of wooden linings by termites, while the high costs of (imported) cement prohibited its use. Arching rings from local stone might be the answer, but necessitates training of the villagers in cutting and shaping.

Cost estimates are reported. The use of local labour under supervision has made it possible to save more than half the cost compared with wells built by contract.

KW: design, excreta disposal, financing, original structure, problem identification, supervision, training.

see also: BURGEAP (1974)

95. PINEO, C.S.; SUBRAHMANYAM, D.V.
(WHO Division of Environmental Health)

Community water supply and excreta disposal situation in developing countries, a commentary, WHO, Geneva, (1975), 41 p.

DA: 1971-1972

CO: -

AN: An analysis and commentary on some of the salient data of the 1970/1971 WHO survey on water supply and excreta disposal services in developing countries. Questionnaires were returned by 91 and 61 countries respectively. In 25 countries, accounting for over 75 per cent of the population included in the summary, spot-checking on completeness and comparability as well as additional data collection took place.

Information was gathered on the proportion of the urban population supplied by house connections and public standposts; the proportion of the rural population with reasonable water supply access; the estimated percentage of urban intermittent supply; additional urban and rural population supplied with water annually; water quality control: authorities, standards, surveillance procedures; planning, construction and extension of water supplies; maintenance and operation; reporting; external assistance; unit data on consumption, cost etc.; long-term programmes, including criteria for priorities in providing new supplies; training; research and development and constraints to progress. Information on excreta disposal was obtained on similar lines, with additional data on population served by public sewerage systems, conventional treatment methods, oxidation ponds and on the percentage not served by sewage treatment of any kind. Part of this information is summarized in the report.

The present world situation is presented in segmented circles, showing proportion of urban and rural populations in 6 major areas of the developing world served by house connections or adequate access to water and disposal systems, and proportion of populations left to be served.

An example of the correlation between water quality and cholera in Mulanje district, Malawi, serves as an illustration of the relationship water-health. Leakages and intermittent supplies are health hazards. Estimates of the percentage of water unaccounted for in certain cities are as high as 50. The highest figure for intermittent supply is found in South East Asia with 91 per cent.

There is a positive relationship between economic development, as indicated by G.N.P. per capita, and basic sanitation. Countries with the lowest G.N.P. have the largest proportion of population still to be served.

Three categories can be distinguished: almost all countries with less than \$200 G.N.P. have over half of their population still to be served; of countries with \$200- \$500 G.N.P. approximately 60 per cent have over half of their populations still to be served; all countries with over \$500 G.N.P. have at least half

of their population served.

Of the 7 constraints listed in the questionnaire, "insufficiency of internal finance", "lack of trained personnel" and "insufficiency of external assistance" were the three most frequently mentioned. When scores for each constraint were ordered according to region, "insufficiency of internal finance" was followed by "inappropriateness of financial framework" and "inappropriateness of administrative framework". The authors therefore conclude that there is an interdependence of constraints, such as insufficient consultations with the communities to be served and lack of appraisal of their needs, priorities and capacities to pay, lack of sound financial policies tailored to the specific local needs, inappropriate institutional infrastructures and lack of trained manpower, leading to partial use of resources allocated and lapse of voted funds at the end of the financial year. They also state that the community water supply and excreta disposal sector cannot be considered without analysing health and socio-economic development objectives and plans at the same time.

Important factors of successful water supply and excreta disposal projects listed by the authors are active community participation during inception, execution, administration and operation of the system, simple technology (e.g. in Kenya) and standarization (e.g. in N.E. Thailand), strong government support (e.g. in the Dominican Republic and Brazil), and proper economics and financing. Important for this last point are incorporation of local needs by national planning authorities, external sources of finance, project presentation with a comprehensive pre-investment survey, including both economic and engineering feasibility studies, local resources like cooperatives, housing banks, lotteries, revolving funds, etc., institutional arrangements and economic viability of the project and financial/technical adaptations to the needs and capacity of the community. If necessary the state should subsidize a major part of the construction cost, but operation and maintenance should be the responsibility of the community, which will require special engineering and financial designs.

Criteria applied to previous community water supply projects concern water scarcity, population size, growth and density, health agricultural, industrial and other development, social reasons, like uplift of certain areas or sections of populations, cost and willingness to participate. It is remarkable that in the region with the greatest achievements to date, Latin America and the Caribbean, "health" was the next to lowest priority in terms of frequency of mention and "willingness of community to

participate " was the next to highest priority. In other regions this last priority was quite low.

Special mention is made of the "comfort stations" in Ibadan, Nigeria, as a successful solution to excreta disposal in congested urban and fringe areas, and a description of their design, construction and maintenance is given.

Finally, the authors discuss progress made in urban water supplies in the countries which took part in the 1962 (urban) and 1970 survey and the chances of reaching the second United Nations Development Decade targets in 1980.

KW: administration, econ. impacts, evaluation, financing, health economic impacts, operation and maintenance, research, selection criteria, training, waste disposal.

96. PISHAROTI, K.A.

(Gandhigram Institute for Rural Health and Family Planning, Madurai District, Tamil Nadu, India)

Guide to the integration of health education in environmental health programmes, WHO, Geneva, (1975), 81 p.

DA: -

CO: -

AN: The guide is based on the increasingly accepted notion that, for maximum benefits, environmental health technology has to be supplemented by health education. Its objective is to stimulate and facilitate the integration of the health education component in technical environmental health programmes and in school systems in developing and developed countries.

The guide starts with an introduction on health education in general and environmental health education in particular. An summary is given in simple terms of the various factors which play a role in the process of individual behaviour change.

Section one covers the integral planning of environmental health programmes throughout which the health education component should be present: policy decision at government level; re-orientation of environmental health programme planners; survey of available health education resources; involvement of consumer representatives in policy, administration and operational planning; and development of an adequate framework for health education, from policy design to evaluation (a diagram is presented and discussed). In a baseline information is gathered on programme, community and various administrative levels, for which

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a number of topics are suggested. Educational objectives should be set and educational approaches selected (individual, family, small group, mass media and community organization), depending on the selection of target groups and the particular stage in the decision process (awareness/interest/evaluation/trial/adoption/evaluation).

Various settings for health education are discussed followed by a number of organizational considerations, including staffing and role definitions, coordination, example setting, training of community leaders, transport and budget. The final step is the evaluation, following the conceptual made for the formulation of objectives. Indices for evaluation on input, process and output variables have been added.

Section two discusses the training and supervision aspects of a health education programme accompanying environmental health programmes.

The author suggests training for those who are already fully or partly engaged in environmental health work: engineers, sanitary inspectors, health service personnel and development workers in other fields.

A curriculum should be based on a learner-oriented approach and methods should include fieldwork, apart from other methods mentioned. A diagram illustrates the organisation of in-service training courses which fit into the programme system and the various constraints which can hamper their optimal functioning. Evaluation, objectives, functions, methods and style of supervision conclude this section.

Section three concerns the incorporation of environmental health education in school curricula. The objectives are the development of knowledge and attitudes, as well as personal and school practices.

Teachers should have several functions in the programme, including, the establishment of family and community relationships, such as in Parents/Teachers Associations and by school participation in health projects (surveys, voluntary health workers, health information via drama etc.) The curricula should be based on current national and local health problems, stressing practical experiences (school/ground maintenance, visits to construction sites, field work to identify insect breeding places, invitro breeding, etc.) Annexures to the guide include instructions for home visits and interviewing, the small group approach, administrative meetings, and a discussion of communication media.

The guide is very detailed, ranging from a high level of abstraction to very practical remarks, such as the need for transport - preferably "sturdy vehicles" - for health education activities outside office hours and the special attention which

should be paid to the sanitary conditions of training course institutions.

KW: health education, manpower, media and methods, planning, and evaluation, supervision, target groups, training ,

97. PLANNING, RESEARCH AND ACTION INSTITUTE (PRAI)
(Lucknow, India)

Induced change in health behaviour: a study of a pilot environmental sanitation project in Uttar Pradesh, P.R.A.I., Lucknow, India, Publ. 356, (July 1968), 176 p.

DA: 1958-1965

CO: India

AN: An evaluation of the Gorakhpur Environmental Project in 15 villages in Chargawan Block, Gorakhpur district, India. The project was the last in a series of four rural sanitation and water supply projects, the first of which was started in 1958. The phased design made the incorporation of experiences of the previous projects possible.

The complete project consisted of the design and introduction of improved latrines and water supplies to demonstrate their impact on the incidence of intestinal diseases; the development of a supply line and organizational pattern for the various agencies involved in the project; the development of a training programme for the expansion of the project and the development of a health education programme.

An improved latrine design was developed in 1957-58 with several field testings. When the supply of local materials by the villagers met with problems, all responsibility for the installation was given to the local Self-Government Engineering Department, a state government agency with villagers contributing labour for the digging of the pits, the building of superstructures and 25 per cent of the total cost. The installation of the improved water supply was the sole responsibility of the engineering department. No further involvement of users was demanded.

General policy and coordination of the project was to be the responsibility of the Project Advisory Committee at state level, with representatives of the medical and health department, engineering and planning department, meeting several times a year. Regular supervision, coordination and guidance were to be provided by the Project Advisory Committee at district level. The

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India

Project Administration Committee consisted of senior and junior representatives of the department of rural health, sanitary engineering and health education. Junior associates of the rural health department were responsible for monthly project supervision, experimentation and training of the sanitary inspectors, who assisted the local project agents. Workers from the health education department trained the extension workers, developed aids and took care of school health education. At village level, the programmes were implemented by field teachers who were in theory assisted by the Panchayat Sanitary Inspectors and Secretaries. Their tasks were in the field of information and health education, collection of funds, record keeping, and supervision of use and maintenance. Lack of cooperation from other extension workers and Panchayat secretaries, and poor latrine use (of the 1170 latrines installed under the first scheme, only 588 were found to be used after five years, mainly because of poor construction of the superstructure) led to special attention for these two aspects under the Gorakhpur project. In five of the fifteen villages involved, implementation was made the responsibility of the regular extension workers (Village Level Workers) and Panchayat secretaries, but this approach had to be given up three months later due to lack of cooperation and higher level support.

The two-tier training programme was set up for technical personnel only. One person per district was trained at a special training centre for one month, after which he trained ten masons (one per ten villages) at the Block Headquarters. During the training, some ten latrines were manufactured and installed as demonstration units in schools and the homes of regular extension workers. The field teachers got in-service training only. A three-day training camp for village leaders and schoolteachers was mentioned for one project. The health education programme consisted of a few mass meetings (some with filmshows, depending on the cooperation of the regular extension service) to introduce the projects, initial home visits to establish rapport, to inspect existing sanitation facilities, and to assess installation potential (space, attitudes), educational house visits, demonstrational visits to latrines installed and group discussions with flannelgraphs and flashcards. The use and impact of leaflets and pamphlets was negligible.

For the evaluation of the Gorakhpur project, the twelve villages were classified into four categories according to their accessibility (more or less than four miles from headquarters) and adoption (over or under 50 per cent of latrine adoption). In each category, a village was selected by probability in proportion to population size. The number of adopters

and non-adopters per village was identified, and a proportional sample was taken of 100 respondents for each category. A random sample of 50 inhabitants of two villages in a neighbouring block served as a control group, as no baseline survey had been carried out. The two groups were found to be matched in all main characteristics except religion. Data were collected through interviews with heads of sample households, observations in sample households, interviews with project personnel and the study of various project documents. They include socio-demographic characteristics, adoption process and extension methods, programme understanding and sanitation knowledge, attitudes and practices.

During the project 525 latrines and 35 handpumps were installed for 472 households, 11 per cent of the total, and ten institutions. 48 per cent of the latrines were installed in one village. In six other blocks the total number of latrines installed in the same period amounted to 62. Adoption was highest for christians (45 per cent). This was attributed to the status symbol function the latrine had for them. Among Muslims adoption was second highest (15.5 per cent), probably related to the "purdah" system: privacy for women was the most frequently mentioned advantage by adopters (32 per cent). Other correlates of latrine adoption were economic status, exposure to various extension techniques, total number of living rooms, social status, knowledge of disease, education and distance to water source. Other reasons for adoption were convenience (21 per cent), time saving (13 per cent), decrease in foul smell (11 per cent), decrease in disease (11 per cent), in cholera (3 per cent) and village cleanliness (6 per cent). No advantages were seen by 27 per cent of the adopters and 48 per cent of the non-adopters. Main perceived advantage of pumped water by adopters and non-adopters in the experimental villages was pollution free water (61, 54 per cent), in the control village this was convenience (83 per cent). Main reasons for non-adoption of latrines were lack of money (43 per cent) and of space (41 per cent). Ranking of public health programmes was very low, with agriculture given a much higher priority by the three groups (74, 77 and 84 per cent versus 11, 10 and 8 per cent; the latter percentages shared equally with educational programmes). Awareness of existing health programmes was also low (29, 15 and 6 per cent) except for the latrine programme among adopters (86 per cent) followed by the water supply programme (48 per cent).

Best known sources of infection were physical contacts (35, 25 and 34 per cent) and faeces (35, 19 and 44 per cent), but contaminated drinking water and rats were rated low (6, 15 and 6 per cent). Respondents were best informed about cholera and worst about hookworm. Observed use of latrines was 53 per cent, a covered seat

was observed in 23 per cent, half of them were found clean, and water storage near latrine 21 per cent. Reported regular use was 31 per cent.

A great number of organizational constraints were revealed by the evaluation study, such as problems with latrine supply agencies; lack of agency coordination at the state and district level, with advisory committees rarely meeting; lack of co-operation between project village workers, and other extension and government health workers and official village leaders; time lag between fund collection and latrine installation; lack of supervision on completion of superstructures and lack of focusing on other members of the household, in particular the women. They were consulted before adoption by 73 per cent of the 64 per cent of adopters; the others consulted the village leaders.

KW: adoption process, attitudes, constraints, environmental sanitation, evaluation, health education, knowledge, media and methods, organizational structure, practices, programme design, research design, training.

98. QUESADA, G.M.; MCCARTHY, R.H.; BRENNER, D.J.
(Health Communications Department, School of Medicine, Texas Technical University, Luddock)

Project report on a model for improving access to and utilization of regional health facilities through health education-communication programmes, Texas Technical University, School of Medicine, Health Communications Department, Lubbock, Texas, (October 1975), 382 p.

DA: 1975

CO: U.S.A.

AN: If health education is to produce an actual behaviour change, information alone is not enough, the communication will have to be designed in the light of the attitudinal and motivational situation. It should solve subjective constraints, like social class, cultural biases, social and group pressures, perceived group membership and perceived expectations of significant other key persons. It should also provide facilitating mechanisms for actual behaviour, and solve objective constraints, like for instance lack of money and lack of education.

In order to develop a model for collecting data on which effective health education programmes can be built, 40 in-depth interviews on health and pre- and neonatal nutrition were carried out with 13 health workers and 27 health services recipients.

Seventy six respondents in various health worker categories (physician, nurse, referral person, agency administrator, point of entry person) and 90 respondents in consumer categories, (first pregnant, pregnant mother, non-pregnant mother, non-pregnant non-mothers, grandmother and -father), the majority of them Black or Mexican American, were asked to answer a questionnaire on current behaviour and sources of health information and health care, and to sort Q-statements and pictures on health and nutrition. Picture sorts were to be in "order of importance to being healthy" to measure social and group pressures (actual sort) and "order of importance to being healthy when rich" to measure real opinions (suppositional sort). Data analysis consisted of a factor analysis of statements and picture Q-sorts, correlations of actual and suppositional picture factors, and correlations of pairs of actual and suppositional sorts done by the same individual. From the analysis of the factors produced by the statements sorts and suppositional picture sorts, 8 distinct types of attitude clusters, segmenting the respondents, were identified. One category of target persons with similar attitudes thus identified was a group of Mexican-American females of low socio-economic status, relying on physicians for health care but on relatives for information. Communication with them is easy when culturally correct e.g. taking into account the reliance on the family, particularly mothers and grandmothers. Their crusading spirit makes them suitable voluntary health workers. Another target group, which demands a different approach, comprised an extremely low income, rural, older minority population, with the greatest tendency to use folkhealers, particularly midwives. They rely on relatives for health information and advice and define quality in terms of quantity (lots of food, lots of health professionals to take care of them).

From the open-ended questionnaire data, the authors conclude that mass media are generally rejected by consumers as sources of specific health information, because they are perceived as less credible than health workers. Health workers and services recipients have different views of the relative usefulness of the various mass media and of interpersonal media. Health workers preferred radio and TV to booklets (45.2 percent and 17.8 per cent respectively), and only 16.5 per cent of them felt that the support of the family and friends was an effective way of producing behaviour change, with 5.8 per cent actually willing to utilize these informal channels. Consumers preferred booklets to TV (69.7 per cent versus 30.3 per cent), 55.3 per cent of them relied on relatives for nutritional advice, while 39.5 per cent mentioned friends and only 3.9 per cent doctors.

The model based on these research data consists of five phases: the establishment of channels between the social and behavioural

sciences and the health system; segmentation of consumer types, health workers, roles and health system, establishing actual and potential links between system and target groups; analysis of non-health system solutions to health needs, e.g. lay-referral system and the use of suitable categories as voluntary health workers; and the development of specific communication strategies and materials for specific health workers roles with specific service recipients categories. To identify these the authors suggest a panel composed of services recipients' representatives of the various identified categories, representatives of the worker categories and traditional health workers as midwives, curanderos, herbalists; and finally the strategies are implemented and quantitative and qualitative evaluation e.g. by path-way analysis and Q-tests or similar subjective tests are carried out.

KW: attitudes, health education, manpower, media and methods, practices, target group.

99. RAMAN, V.S.
(NEERI, Nagpur, India)

Water supply programme under Singur rural health unit, *Swasth Hind*, (April 1962), pp. 99-104.

DA: 1962
CO: India

AN: A description of the maintenance and repair arrangements of the Rural Health Unit and Training Centre in Singur, West Bengal, India, which has run a rural sanitation and water supply programme since 1939. After a discussion of traditional sources (open shallow wells and ponds), the construction of tubewells is described, with community participation in the construction of a watertight platforms with lead-way drains leading to soak-pits.

Maintenance and repair are carried out by a travelling tubewell technician with a responsibility over approximately 150 wells. Community participation consists of filling in printed complaint cards with details of location and nature of the defect and depositing them in complaint boxes kept at shops, schools, union board offices and health centres, where they are collected by the technician.

When water yields begin to decline after approximately 5-7 years the community can make an application for re-sinking the well which, on inspection by a sanitary engineer, is carried out after the community has paid a deposit for meeting the cost of reconditioning choked strainers. The new site is chosen as close

as possible to the old one, but in the event of local disagreements, unanimity on the site has to be reached first. The community further contributes at least four labourers and has to agree on constructing a new platform for which the Centre provides the cement. The community takes care of transporting the cement, collecting bricks and sand and paying labour costs.

Sanitation habits at the surface have no direct effect on the source due to the compacting process of the particular type of topsoil around the well. Construction takes place a minimum of 25 feet away from the nearest latrine, thus safeguarding against underground contamination. Most of the contamination taking place is through the top, by impure water used for priming the handpump. Education or self-priming pumps are necessary.

Objectives of the Environmental Hygiene Committee Report of the Government of India have been met, (one well per 150 users at no more than 400 metres from any house and yielding at least 20 litres per person per day), but use of traditional sources for non-drinking purposes is still continued. Criteria for changing these habits are the distance from the household to the source and the ease and the readiness of tapping, which points to the desirability of a piped water scheme. Proposals for two such schemes have been made.

KW: financing, health education, operation and maintenance, practices.

100. RAMAN, V.

(NEERI, Nagpur, India)

Health education in relation to water supply and sanitation in rural areas, *Journal of the Indian Water Works Association*, 9, 1, (1977).

DA: -

CO:-

AN: All personnel in environmental engineering should be trained in methods and techniques of health education to persuade the community to participate in rural water supply and sanitation programmes.

Personnel are to identify community leaders, religious leaders, elected representatives, teachers and the village school master. Health education should then be directed at the community leaders who, in turn, carry out the health education of the community. The various health education methods mentioned are use of visual aids, live demonstration of sanitary measures, use of mass commu-

nication media, and two-way communication in personal interviews and home visits, small group discussions and panel discussions with literate and educated persons. Target groups for health education are organized groups, such as cooperative societies, village council and social and agricultural agencies, community leaders such as religious leaders, elected representatives, teachers and the village school master, the village schools and housewives.

Eight objectives of health education are mentioned, namely: universal community acceptance and use of safe water; promotion and utilization of adequate waste water and excreta disposal methods; satisfactory maintenance and operation of water supplies; adoption of related personal health habits, increasing knowledge of the relation between water and disease and the prevention and control of water-related diseases, motivation for universal support and involvement in water supply and sanitation schemes in all phases, establishing a sense of belonging and the concept of self-help for environmental sanitation and promotion of health education activities by all agencies and leaders at all levels.

The author stresses the necessity of counteracting wrong information and rumors, of collaboration among technical and health personnel to coordinate messages, of listening to other felt needs and taking some initial action, e.g. in road development, of gathering knowledge of local customs, habits and beliefs, of using a community organization approach, and of a "why and how" instead of a "do and don't" approach.

KW: constraints, environmental sanitation, health education, manpower, media and methods, target groups.

101. MORA RAMIREZ, J.; LOPEZ OROZCO, O.
(Division de Saneamiento Básico Rural, Instituto Nacional de Salud, Bogota, Colombia)

Participacion comunitaria y saneamiento basico rural en Colombia, (Community Participation and basic rural sanitation in Colombia) *Carnets de l'Enfance*, 34 (1976), pp. 89-101

DA: 1974-1976

CO: Colombia

AN: A study on rural communities carried out by the Department of Environmental Sanitation revealed that in 1974, out of 7.100 communities, 4.125, or 58 per cent had no potable water supply and that 6.440, or 91 per cent had no sewerage disposal

system. This situation existed in villages ranging from 50 to 2.500 inhabitants.

The government of Colombia therefore launched a national programme with the intention of not only providing the rural population with drinking water and sewerage disposal systems, but also of modifying its attitude by involving it in its own development.

Each community actively participates in the different phases of the programme. During the study phase, the community helps to analyse the health, economic, social and cultural situation and offers suggestions based on its experience. It then participates in the preparatory tasks and in the construction of the system itself by providing land, material and labour, and by collecting funds.

Once the work has been completed, the system is turned over to the community. Its administration and maintenance are entrusted to a local water committee, which is made up of three members: a president and a treasurer appointed by the village's general assembly, and a secretary who is a representative of the programme and who is appointed by the chief engineer.

The community provides approximately 20 per cent of the funds needed to cover the costs of the system. The remaining 80 per cent are in part financed by a long term loan, the amount varying according to the reimbursement possibilities of the community (from 40 to 60 per cent). In 1974 the monthly payments or "family fees", from rural communities came to US\$ 1.285.000.

The implementation of this national programme should, in the long run, create employment possibilities and increase the value of the land. It should also bring social benefits, such as a growing awareness on the part of the communities of their possibilities for development, and a decrease in the rural exodus. Further benefits should result from the health education which is included in the new programme to improve the living conditions of the rural population. (Journal abstract)

KW: administration, financing, health education, implementation, maintenance, planning

see also: REPUBLIC OF COLUMBIA (n.d.),
PINEO (1967d), and
WHO/IRC (1978)

102. ROBERTS, G.O.
(The Catholic University of America)

Cultural and social differentials in acceptance of health and

sanitation practices in Bo, Sierra Leone, Ph. D. Dissertation,
The Catholic University of America, Washington D.C., (1961)
204 p.

DA: 1957-1958

CO: Sierra Leone

AN: The relationship between some socio-cultural characteristics (education, occupation, ethnic and urban/rural origin, religion, sex and membership of secret societies) and the adoption of health innovations (hospital deliveries, protein-rich nutrition, hygiene and sanitation practices, and attitudes on curative facilities and treatment) was investigated in a field study in Bo, Sierra Leone.

Data were collected through a study of official records and publications, through questionnaires mailed to officials and community leaders (with a return of 30 per cent), through interviews, using precoded questionnaires with 360 students in four selected schools and respondents from 301 households selected by random sampling from a houselist of Bo and through participant observations during ten months.

A positive relationship was found between the adoption of health practices on the one hand and socio-economic status and urban origin or orientation on the other. Educational attainment was observed to be the most significant. Population categories showing the greatest resistance to modern health practices were those with little or no formal schooling, those employed as unskilled labourers, members of the Limba and Mende tribes, members of tribal secret societies and those of rural origin or orientation.

The majority of the respondents (56 per cent) reported the use of piped water, with 6 per cent using rainwater collection tanks, 15 per cent private wells and 23 per cent stream water. An informal traditional supply organization was found to exist in the last category. Shallow neighbourhood reservoirs were constructed by obstructing the natural flow of the river with local materials and periodic cleaning was carried out by members of the neighbourhood.

Purification by boiling and/or filtering was reported by 26 per cent of the respondents, in particular those with a higher status.

Over 40 per cent of the respondents were observed to use the road or backyard for the dumping of household refuse, while 58 per cent had a "dirty box".

The author concluded that the continuation of the observed

trend towards the adoption of modern health practices and further success in establishing and maintaining curative and preventive health programmes will depend on the relationship between the health and other agencies and the population. The training of local field workers and a more effective use of the existing traditional institutions is advocated, as well as social research into the patterns of social interaction and cultural composition at the grassroot level, a more extensive health education programme and the improvement of demographic and health statistics.

KW: adoption of innovations, attitudes, practices, rural waste disposal

103. ROGERS, E.M.; ASCROFT, J.R.; RÖLING, N.G.
(Michigan State University)

Cross-cultural generalizations about the diffusion of innovations: research in Brazil, Nigeria and India, paper presented at International Sociological Association's Seventh World Congress of Sociology, Working Group 7 on Modernization, Diffusion and Resistance To Change, Varna, Bulgaria, (September 14-19, 1970) (1970A).

DA: 1965-1968

CO: Brazil, Nigeria, India

AN: A paper describing the first phase of a cross-cultural research project on the diffusion of agricultural, health and family planning innovations. A survey was carried out in 76 villages in Brazil, 71 in Nigeria and 108 in India, selected with the assistance of experienced extension workers and divided into "relatively successful" and "unsuccessful" with respect to the adoption of innovations.

Personal interviews were conducted with change agents and with formal leaders who in turn selected informal leaders sociometrically, to determine which variables were related to successful diffusion.

The first set of variables found to have a positive relationship were village variables, including level of socio-economic development, level of organizational development, degree of system openness and communication integration. Indices to measure this variable differed by nation, e.g. the number of motorized pumps per capita in India and retail stores in Nigeria for level of socio-economic development. In Brazil measurement at village level showed no significant relations. This was probably due to the lack of an independent village system, since its

functions were held by the county.

A second group of variables positively related to adoption at village level were leadership variables, including leaders' modernization, and leaders' consensus on village problems, while opinion leadership concentration and socio-economic status concentration showed no consistent relationship.

The third group of variables, concerning the change agent, showed a positive relationship with the degree of change agent contact, and the degree to which he used a multi-media approach. No significant relationship was found with personal characteristics of change agents, such as age or formal education, although it is generally held that a low social distance is an important positive element in extension.

KW: adoption of innovations, extension, leadership, social structure.

see also: ROGERS et al. (1970B)

104. ROGERS, E.M.; ASCROFT, J.R. ROLING, N.G.
(Michigan State University)

Diffusion of innovations in Brazil, Nigeria and India, Diffusion of Innovations Research Report 14, Department of Communication, Michigan State University, East Lansing, (1970B), 388 p.

DA: 1965-1968

CO: Brazil, Nigeria, India

AN: Final report on a cross-cultural research project on the diffusion of agricultural, health and family planning innovations. Although health knowledge and practices were part of the innovation study, agricultural innovations take up the greater part of data-collection and analysis, in accordance with the evolution in diffusion research.

The project was set up in three phases: a survey among change agents and village leaders in 76, 71 and 108 villages in Brazil, Nigeria and India respectively, to determine the variables related to diffusion success at village level; a survey of heads of village households to determine the variables related to diffusion success at individual level; and a series of field experiments to test various communication strategies.

Nineteen individual characteristics were found to be related to innovativeness, showing almost identical patterns in agricul-

tural and health matters, although not all variables were investigated for the latter. The number and types of health innovations studied differed for the three countries; six in India, including safe drinking water, seven in Nigeria, including latrine construction and water boiling and one in Brazil.

Innovativeness was found to be related to the social variables of literacy and formal education, level of living, social participation, formal organization leadership and opinion leadership, the communication variables of outside contacts, change agent contact, knowledge and credibility, and mass media exposure and the modernization variables of educational aspirations and knowledge of innovations.

An essential variable is the amount of change agent contact, which usually runs parallel with opinion-leadership in modern villages. Social participation was found to be of varying impact, in Nigeria accounting for 22 per cent of the total variance in innovativeness and in India 4 per cent. Newspapers and radio appear to play a greater role in health innovativeness than in agricultural innovativeness, but this may be due to the fact that the change agents were mainly agricultural extension agents. Utilization of health extension workers may give a different picture.

The fastest results in extension, therefore, are reached by approaching the more advanced villages in an area and groups within a village. This creates a problem of inequity, which extension policy makers should take into account when planning rural development projects.

The field experiments were designed to measure the impact of different communication strategies on knowledge, attitudes and adoption of agricultural, health and family planning innovations in the three countries.

The authors discuss various organizational problems, each of which had caused methodological problems. The Nigerian experiment, comparing radio forums and leaders' involvement, had to be broken off due to the civil war. The Brazil experiment compared the impact of 6 radio forums with 6 community newspapers, using 6 control villages. The Indian experiment compared two radio forums with two literacy-reading classes.

Results indicate that the efficacy of radio forums is much greater than literacy reading classes or community newspapers in terms of costs for receivers and for change agencies, and that a multi-media approach is superior to a single-medium approach.

KW: adoption of innovations, evaluation, extension, inequity, media and methods.

see also: ROGERS et al. (1970A)

105. ROY, P.

Correlates of health innovation in 8 Indian villages, Project on the Diffusion of Innovations in Rural Societies, Michigan State University, Research Report 21, in P. Roy, J. Kivlin (eds), Health Innovation and Family Planning, A Study in Eight Indian Villages, Hyderabad, National Institute of Community Development, (May 1968), pp. 21.

DA: 1967

CO: India

AN: This study on the knowledge, trial and adoption of six health practices (smallpox vaccination, cholera inoculation, malaria prevention, making drinking water safe, bedbug killer and modern child birth practices) was part of a larger study on the adoption of agricultural innovations. The interview sample was therefore limited to 680 farmers with at least 2.5 acres of land and an age below 50. The villages were situated in the states of Andra Pradesh, Maharashtra and West Bengal. The questionnaire was pretested twice, which lead to the dropping of questions on time of adoption.

Levels of knowledge were found to be universally high, ranging from 70 per cent on modern child birth to 96 per cent on smallpox vaccination. The same two practices were also lowest and highest for trial (23, 93 per cent) and adoption (12, 70 per cent). Data on knowledge, trial and regular use of safe drinking water were 78, 61 and 46 per cent respectively. No questions were asked on reasons for non-adoption and discontinuation of the practices.

The unidimensionality of the measures of knowledge, trial and usage was tested by Guttman scaling and factor analysis and found to be acceptable. Trial was selected as the best measure of health innovation on logical and empirical grounds. Trial was related to social background characteristics (age, family size and type, education of all members of household); socio-economic status (caste rank, level-of-living index, and participation in formal village organization); communication (radio listening, film-going and newspaper reading, knowledge and interaction with health workers, urban contacts) and social psychological scales (secularism, political knowledge and empathy). Only age and family size were not related to health adoption. Multiple correlation analysis revealed an explanation of 30 per cent of the variance in adoption of health practices by the variables measured, with the mass media index, knowledge of health workers, political knowledge and level of living making a significant net

contribution.

The author recommended continued extension through mass media and health workers leading to more felt health needs. He pointed out that level-of-living is going to be an even more severe constraint in adopting health practices than in the adoption of agricultural innovations, which should be taken into account when extending medical services to the countryside.

KW: communication media and methods, practices, preventive health, knowledge.

see also: KIVLIN et al. (1968),
ROGERS et al. (1970A, 1970B), and
THORAT (1969)

106. SANDBACH, F.R.
(Keynes College, University of Canterbury, Kent)

Preventing schistosomiasis: a critical assessment of present policy, *Social Science and Medicine*, 9, (1975), pp. 515-527.

DA: 1913-1975
CO: -

AN: From a review of the literature on schistosomiasis control it appears that to date most emphasis has been placed on chemical control of the snail which is the intermediate host of the parasite. The author suggests that this emphasis is misplaced, and that evidence from epidemiological studies, control projects and studies of the economic impact of the disease, together with a consideration of the socio-economic impact of alternative programmes indicates that environmental sanitation, including the provision of safe water supplies and health education are the most appropriate measures.

During the 1930's the emphasis on socio-economic factors in epidemiology led to the adoption -for a short period- of sanitary measures in controlling schistosomiasis. However, the lack of social knowledge in planning the projects and their consequent failure led to a depreciation of these methods. An example of this lack of social planning is the latrine programme in Egypt; where construction was limited to the villages, while the place of transmission was clearly at the place of work, in the fields.

KW: bibliography, environmental sanitation, evaluation, health education, planning, preventive health.

107. SANDHU, S.K.; GUPTA, Y.P.; SRIYASTAYA, V.P.; GUPTA, G.C.
(Central Health Education Bureau, New Delhi)

Adoption of modern health and family planning practices in a rural community of India, *International Journal of Health Education*, 20, 4, (1977), pp. 240-247

DA: -

CO: India

AN: A study was carried out in five villages selected at random around the Najafgarh Rural Health Training Centre near New Delhi, India. The purpose of this study was to identify the relationship between the reported awareness, perceived need and adoption of seven health practices (antenatal check-ups, tetanus toxoid injections, child delivery service, DPT immunization, smallpox vaccination, latrine construction and family planning) and five social, psychological and communication characteristics (socio-economic status, leadership behaviour, level of aspirations, communication exposure and contact with health workers).

From the 567 households whose youngest child was under 8 a random sample of 170 was selected. The interview schedules were pretested three times. Matched interviews were obtained from 126 household couples.

Health practices adoption was found to be highly associated with awareness, perceived need, education and caste status. Of the five adoption determinants investigated, only one variable was found to be significant and that was the degree of contact with the health workers. Exposure to mass media was related significantly to family planning only. Mass media had covered this topic extensively, while their use in other health programmes was limited. The total variance explained by the five determinants investigated was only 7 per cent. Health had a low priority, as suggested by the absence of a relationship with aspirations, and no difference between leaders and non-leaders was found.

Delivery services and smallpox vaccination had the highest adoption rates (81 and 73 per cent respectively), while DPT vaccination and sanitary latrines were least popular (11 and 12 per cent respectively); although nearly 3/4 of the respondents were aware of the importance of latrines. No reasons for non-adoption were asked, but the authors suggest that the lack of association between latrines and health and the existence of the alternative of going to the open field are responsible.

From the findings it can be concluded that personal contacts with health personnel need to be intensified, that mass media

should be used more extensively in other health programmes beside family planning, that extension should take better advantage of educated and high caste people for accelerated health adoption and that health education efforts should be strengthened, using leaders to enlist the people's cooperation, and motivating individuals to adopt better behaviour, stressing consequences and benefits.

KW: adoption of innovations, bibliography, communication channels, excreta disposal, felt needs, health knowledge, preventive health.

108. SAUNDERS, R.J.; WARFORD, J.J.

(World Bank, Energy, Water and Telecommunications Department)

Village water supply: economics and policy in the developing world, John Hopkins University Press, Baltimore/London, (1976), 279 p.

DA: -

CO: -

AN: The book is a study of the economic, social, financial and administrative issues characteristic of village water supply and sanitation programmes, resulting in a series of policy recommendations. It is based on a survey of published and unpublished literature, personal observations in 25 countries and personal communications with international agencies, academic institutions and operators of water supply programmes.

Some social aspects of planning and management which are touched upon, and which illustrate the importance of a new approach to rural water supply and sanitation development, are income redistribution as one of the determinants of investment priorities ("worst-first" versus "growth-poing" strategies), community enthusiasm and community participation.

The presence of a felt need for village water supplies and sanitation systems is stressed as a selection criterium. This need should be developed through a water programme promotor and a village water supply committee, if the desire should be absent in high priority areas. The presence of strongly felt needs may, however, lead to a discrepancy between community expectations and the services provided. This is illustrated by the case of a 400-village supplies scheme which provided public fountains instead of the desired house connections, and which extended its constructions when community maintenance and contributions failed. However, the systems were underdesigned, to meet the donor's objec-

tive of 400 supplies, which caused further community participation problems and, finally, the abandonment of the scheme.

Lack of community participation in the maintenance phase is another source of failure: in two of the countries visited systems were actually failing at a more rapid rate than they were being constructed. The authors advise the creation of community maintenance systems with a decentralized administration if the village population has a sufficient level of development, otherwise a centralized administration with local advisory committees to foster participation.

Complementary programmes suggested, but not developed in further detail, are a sanitary education programme, latrine programme, drainage programme, rural electrification programme or a full package approach for rural development in a growth-point strategy.

KW: administration, bibliography, economic and health impacts planning.

109. SCOTNEY, N.

(African Medical and Research Foundation, Nairobi)

Rural water supply evaluation: report on some relevant social factors based on a survey of three RWS schemes, prepared for the Ministry of Water Development, Nairobi, Kenya, (1976), 65 p., 6 app.;

also published in Evaluation of the Rural Water Supply Programme, Republic of Kenya, Ministry of Water Development, Supporting Documentation, Nairobi, (February 1977).

DA: 1976

CO: Kenya

AN: Report of an evaluation of three rural water supplies in Kenya, representing a high potential area, a low-rainfall and low-population area and an area with a high population density. All three schemes had a history of vandalism and non-payment of water rates, and initial objectives of the study were to investigate reasons for this and to recommend ways in which the situation could be improved.

The ultimate evaluation report revealed many problems in the design, planning, construction, operation and maintenance of the schemes and offered a great number of recommendations for direct and long-term action.

Field data of a mainly qualitative nature were collected during 10 days of observations, and an unspecified number of un-

structured interviews with provincial and district water officers, local water operators and heads of households or their wives carried out in each area.

A description is given of physical, climatic, demographic and socio-economic conditions, traditional water sources and water use in each area, of the initiation, construction and community response of each scheme, of the current situation in payment, operation and use of facilities, water and equipment, and relationship between staff and community, and of effects of the scheme in terms of benefits and problems.

The author draws 38 general conclusions from the results, with recommendations for improvements. In the first place there are engineering and staff problems, like lack of experience in making designs, difficulties caused by budget reductions, poor execution and supervision of construction, staff strength not keeping pace with rapid development and the separation of operation and revenue collection up to department level. The author recommends the adoption of quality standards and periodical testing before and after installation as well as experimentation with 3-monthly water meter readings.

All staff should be trained in public relations and public education, while frontline staff required training in special water and health promotion. The training of operators should be based on a study of their responsibilities and on an analysis of factors responsible for successful performance, e.g. personality and experience. All operations should be recorded in an Occurrence Book, which is also to include rainfall records. A standard lightweight kit and an operator's manual are to be developed and a regular bulletin is to be distributed among scattered staff.

The author discusses community involvement problems, caused for instance by the fact that only a small number of prominent local people were consulted. Another problem was that traditionally water had been free of charge, and insufficient information on water rates and their collection was given during the planning phase. Water users' groups were created arbitrarily, without clear functions or inner cohesion. The lack of community education in the relevant matters of water use, wastage and procedures for house connections was also a constraint. The advantages and disadvantages of water kiosks are discussed, as are the problems connected with irrigation, cattle watering and vandalism.

For low-density areas the improvement of traditional sources and the development of alternative supplies are recommended. Examples are roof catchment and low-cost storage. Payment should be linked to the harvesting seasons instead of being on a monthly basis. The development of new administrative structures is advocated. These are to be part of existing structures, and they should be much more responsive to local initiative.

The author stresses the need for flexibility in designing and planning supplies. To avoid problems of intervillage rivalries (with a shared supply) on internal conflicts, a range of alternatives, like improved traditional sources, kiosks, neighbourhood group connections and house connections can be offered.

Special recommendations for short term action in each of the three schemes, directed at solving the particular problems, are followed by recommendations for longer term activities. These include field studies and research on the development of suitable evaluation methods. These should also apply to the effects of an intermittent supply, the history of payment for all kinds of social services, e.g. school fees and health treatment, and the personality and experience of the water operator. The development of basic scheme criteria - social and engineering - is necessary. They are socio-economic growth potential, operation and maintenance costs in relation to community resources, development tendencies and plans, e.g. townplanning and building patterns, the subdivision of the land, networks of local paths in addition to feeder roads, the design of junctions for master meters, the adaptation of communal water points to local practices, e.g. water collection by children requiring the provision of lower placed taps, clothes washing habits, cattle etc., wear and tear resistant material and equipment specifications, including stand-by and emergency alternative devices, and design of kiosks with volumetric devices or dials. Timing and the extent of involvement of the potential beneficiaries in the scheme are discussed. A major multidisciplinary sociological study should be carried out by a team of social scientists from a number of fields, 2 of whom should be women. Seven research questions are formulated. The relationship between water and overall development, and water and health is discussed in two additional notes. The appendices contain some background material and photographs.

KW: administration, constraints, design, economic impacts, evaluation, extension, financing, health impacts, operation and maintenance, research, training.

110. SINGH, D.; PATTERSON, R.S.; YASUNO, M.; JOLLY, R.
(WHO/Indian Council of Medical Research Unit on the Genetic Control of Mosquitos)

Genetic control of mosquitos, the importance of an educational diagnosis, *International Journal of Health Education*, 15, (1972), pp. 269-274. (English, French, German summary)

DA: -
CO: India

AN: Studies were undertaken in order to obtain data on community structures, leadership patterns and communication channels in representative rural villages in Delhi State. The purpose was to develop a health education approach leading to the acceptance of the release of large numbers of sterile male mosquitos for a genetic mosquito control project, in order to avoid a repetition of events of 1962 when similar research had to be abandoned due to the hostility of the villagers.

The data collection consisted of baseline surveys for socio-economic characteristics; sociometric techniques for the identification of informal leaders, a communication channels survey in one of the selected villages, and a random KAP survey on mosquito problems and preventive action in 6 villages.

Based on the findings, an education strategy was developed for a test release, using interpersonal channels and verbal and visual methods only, (house-to-house visits and meeting with formal and informal village leaders), supplemented by a demonstration of the absence of inconvenience in the programming (non-biting nature of the released mosquitos). During the release, meetings with leaders were continued, and special attention was paid to counteract negative rumours.

KW: communication channels and methods, health education.

111. SPECTOR, P.; TORRES, A.; LICHTENSTEIN, S.; PRESTON, H.O.; CLARK, J.B.; SILVERMAN, S.B.
(International Research Institute, American Institute for Research, Silver Spring, Maryland, U.S.A.)

Communication media and motivation in the adoption of new practices: an experiment in rural Ecuador, *Human Organization*, 30, 1, (1971), pp. 39-46.

DA: -
CO: Ecuador

AN: An experiment was conducted in three matched villages in rural Ecuador with three other villages serving as controls, to determine the relative effectiveness of various methods for the promotion of four innovative practices: the construction of latrines, of smokeless stoves, the preparation of marmalade, and vaccination against smallpox. Information was given through radio broadcasts, audiovisual aids (films, slides, exhibits, posters,

lectures, demonstration and personal discussions) and a combination of the two.

Transistor radios were distributed to all the households in the "radio" and "mixed" town. The campaign consisted of two weeks of general information and seven weeks of motivation and specific instruction programmes. To measure the results, a survey was conducted on adoption, perceived influence of the media, reasons for (non)participation and socio-economic and psychological characteristics of (non)adopters in all experimental households and in a random sample of one third of the control households. Two additional surveys were conducted to measure a long-term influence.

Significantly more marmalade was prepared and more stoves and latrines were built in the experimental towns, and more households - but not significantly - were vaccinated. Radio broadcasts persuaded more people to participate in stove construction, marmalade preparation and vaccination,* but audio-visual methods were more effective in promoting latrine building. The authors contribute this to the existing labour division, women preparing marmalade and building stoves and men building latrines, as well as to the difference in exposure to mass media, with broadcasts reaching women at home and audio-visual displays more accessible to the outgoing male. A third factor was the superiority of audio-visual media in providing specific instructions for relatively complicated and expensive latrines. In addition, audio-visual methods had a significantly more lasting influence on the building of stoves.

Comparison of the personal characteristics of the adopters and non-adopters show the former to have a higher socio-economic and economic status and higher aspirations for their sons, to be exposed more to other methods of mass communication and to feel greater dissatisfaction with the status-quo.

Club membership was positively related to latrine building, perhaps due to the necessity of the formation of five-men construction teams, although women had to do the same for stove-building.

The ratio of costs to benefits was important for adoption, the costly latrine-building with delayed benefits was the least popular innovation, while smokeless stoves were more popular than marmalade for utility and health reasons, although they were nearly six times as expensive in money and time.

The authors conclude that there is a saturation point for the adoption of innovations in a community. This is demonstrated by the failure to increase effectiveness with a combined media approach and by the similarity of experimental villages in average total expenditure in money and effort. Different media have different optimal uses (men-women, information-construction) and there are interactions between the characteristics of potential

adopters, characteristics of the campaign and inherent characteristics of the recommended practices.

KW: adoption of innovations, evaluation, excreta disposal, media and methods, preventive health, target groups.

112. SPRUYT, D.J.; et al.

Demonstration and evaluation project Ethiopian health centre program, its impact on community health in three towns,
Ethiopian Medical Journal, Conference Supplement (July 1967), (French summary).

DA: 1961-1967

CO: Ethiopia

AN: Summary is given of a public health demonstration project in three selected health centre communities and three matched control villages in representative areas of Ethiopia. A before-after study was used, investigating socio-cultural, environmental and medical conditions. A functional analysis of the health centres and some time and motion studies determined the impact of health centre programmes and improved water supplies on public health.

The planned comparison between the effectiveness of the improved supply and the health centre programme could not be carried out, however, due to financial and timing problems.

The project was introduced through the regular government channels and meetings with local authorities and unofficial leaders by the agency personnel who had been trained in public relations. Then a medical survey was carried out of a systematic, at random sample of 150-170 households and a sociological survey of a subsample from it, consisting of the heads of households of 50-80 families, using pretested questions. Interviews with key residents such as elders, older inhabitants and local traditional healers, a review of the existing area records, and (participant) observation provided additional background information. An environmental survey on water supply, waste disposal, vector control and food sanitation in the villages and the individual sample households was carried out by the sanitary engineer, the sanitarian and the Ethiopian assistant. They used observation with checklists and discussions with the village authorities, health centre staff and household members present during the survey.

A birth and death registration project was started, when no reliable data on child mortality could be obtained in the base-

line study.

The health centre programmes introduced in the three study villages consisted of a polyclinic, a mother and child sanitation programme, a communicable diseases programme and a village environmental sanitation programme.

Lack of legal backing, funds and records hampered the environmental sanitation programmes and their evaluation. Food sanitation inspection and vector control were the most successful programmes.

The authors also report in detail on the lack of administrative support for the fieldworkers.

The results of the evaluation showed a consistent decrease in the prevalence of intestinal parasites in one village only, where the protected spring was used by 53 per cent of the households. The improved well in another village was used by only 12 per cent of the households. A positive change in health attitudes was found for water boiling, fly prevention and sunshine for infants, but the permanence of the reported practices is doubted.

No clear changes were found in environmental sanitation facilities and services and in personal hygiene, and no effect of the health centre activities was found. The only health index which showed a pronounced health centre impact was the vaccination status, which had greatly improved.

The authors recommend that a community water supply board be established with its own budget and staff, as a semi-autonomous agency within the Ministry of the Interior, with representation of the Ministries of Public Health, Public Works, Community Development and Social Affairs and Planning and Development. A grants-in-aid fund should be established, providing 50 per cent of the installation costs for simple village water supplies, such as protected wells. Selection criteria suggested are the adequacy of plans, financial capabilities, trained operation and maintenance personnel, assurance of proper construction, provisions for operation and maintenance, need for water and the anticipated health impacts.

Operation (under supervision of the appropriate government agency) should be the responsibility of local government. Quality testing should be through local agencies, including the health centres. The schemes should operate on a self-supporting financial basis. Completely autonomous construction should still be possible, however. House connections should be forbidden until waste water disposal problems have been satisfactorily solved. The authors also recommend that the Ministry of Education be given a greater responsibility for the hygienic conditions and the construction and maintenance of environmental sanitation facilities in the local schools, with health education carried out through the

health centre staff.

Latrines may have a negative rather than a positive effect when they are not properly designed, constructed, used and maintained. In such cases defecation areas where no danger of the pollution of water sources exists may be more realistic.

Although most health centres have established public health councils or ad hoc groups consisting of principal community leaders, they have been of limited effectiveness, because they were not a part of any legally constituted body. An adaptation of health legislation and more possibilities for local actions are called for.

The schedules of the medical, sociological and environmental survey are added in an appendix.

KW: attitudes, administration, environmental sanitation, evaluation, health impacts, operation and maintenance, planning, preventive health, primary health care.

see also: MESSING (1965, 1965, 1976),
MESSING and PRINCE (1966), and
MESSING, PRINCE and YOHANNES (1964, 1965)

113. SRIVASTAVA, P.K.

(Indian Council of Medical Research, Planning and Research
Action Centre, Lucknow)

Acceptance of sanitary composting in rural areas, *Indian Journal of Public Health*, 13, 1, (1969), pp. 30-35.

DA: -

CO: India

AN: A report of an action research case study of the adoption of sealed cattle waste and household refuse pits in Pahiya village, Lucknow, India.

A health education programme on composting and its relation to public health was carried out by a field assistant posted in the village. The programme consisted of a mass media demonstration and group approach (cyclostyled lessons, charts, folders and flannelgraphs, 4 demonstrations of fly breeding in cages with cattle litter, 5 mass meetings and 31 group meetings). Active village leaders supported the programme by reporting the advantages of applying compost pit manure to the fields.

Of the 95 households in the village, 18 had no cattle and were not taken into account. Of the remaining 77 households, 55 families (71 per cent) constructed bricklined (43) or dug

(23) compost pits. A positive relationship was found between rate of adoption and socio-economical status, literacy, size of landholding, manure requirements, number of cattle and nearness of the pit to the house. No relationship was found for caste. The most important factor in adoption was the size of landholding, with innovators possessing almost double the average holding of the village.

Reasons for adoption were asked both as an open question and as a list of nine possibilities (economic and health reasons, and outside stimuli).

The main reason recorded for the open question was better manure (53) while health reasons (prevention of fly breeding, prevention of fly borne diseases and village sanitation) were rarely mentioned spontaneously (in 6, 4 and 0 cases respectively), but recognized when suggested (in 47, 44 and 46 cases respectively). The problem of the adoption of new practices for preventive health reasons is also demonstrated by the fact that the advised sealing was rarely carried out, so no distinction between partial and complete adoption could be made. The main reasons for non-adoption were non-availability of a suitable site and/or lack of money.

KW: adoption process, constraints, evaluation, extension, media and methods, perceived economic and health impacts, rural waste disposal.

114. STEUART, G.W.

Planning and evaluation in health education, *International Journal of Health Education*, 12 , 2, (1969), pp. 65-76.

DA: -

CO: -

AN: Two simplified models of health education are compared. The first is characterized by a one-way communication flow. Man is seen as a rational being with a high health motivation, easily reached as a passive recipient of mass media messages, lectures and demonstrations. Appropriate teaching skills will be sufficient to lead to knowledge and change of attitude, resulting finally in modified behaviour.

The second model values two-way communications. Man is seen as irrational, but with specific knowledge and needs, often with low priority in health needs, especially in preventive health, and a low captivity, except in special periods like at school, in

hospital or in some occupational settings. His selectivity and passiveness limit the influence of mass media and lectures on his behaviour. The objective of health education, however, is to effect a change in behaviour. Therefore, acceptance of the second model requires more complex planning and evaluation in health education programmes. A distinction is made between the formulation of objectives and the selection of methods.

The definition of objectives should be based on quantitative research (baseline studies) of problems and target groups.

The choice of methods should be based on quantitative and qualitative research into the power structure and participation potential in the community; current health practices and underlying "felt needs"; units of practice, e.g. family, individual, small group and opinion leaders and social networks. Combinations of non-personal and inter-personal methods for behaviour change should be pre-tested and evaluated.

The final unit of evaluation must be individual behaviour, however, not the effectiveness of various methods on knowledge and attitude change. An experimental study design is favoured.

Intermediate objectives may be stated for intermediate evaluation e.g. community changes preceding individual changes.

Other aspects to be considered in programme planning and evaluation are the separation of programme impacts from other influences in the field, the artificial isolation of health behaviour, and the participation of the community in planning, implementation and evaluation, which is especially important for preventive health.

KW: evaluation, health education, media and methods, planning, research

115. STEUART, G.W.; et al.
(Institute of Family and Community Health, Durban, South Africa)

Sanitation changes in and African community, a study of primary group education, Part I,

The Health Education Journal, 20.3, (1962), pp.133-140
and Part II, *ibid.*, 20.4, (1962), pp.198-205

DA: -

CO: South Africa

AN: As part of a sanitation education programme in an urban fringe area inhabited by 1765 families, in Durban, South Africa, an experiment was carried out using primary (friendship) groups as special target groups in addition to the regular programme

carried out in the whole area. This regular educational programme was directed at community organizations such as the Joint Planning Council, composed of health service staff members and prominent community leaders, who acted as channels to their own audiences, pressure groups acting on the municipal authorities and action groups for selfhelp activities. It was also directed at the general public through a mass media programme (filmshows and exhibitions) attended by 2000 people (mainly schoolchildren).

For the identification of primary group leaders a central record was made, in which each of the eight health workers employed in the district recorded all contacts with, and references to, groups and friendships made during their regular work within the study area.

Each health educator was then allotted a part of the study area, of 200 homes, in which he identified 24 women, thought to be key members of different primary groups, using the central group records and his own experiences. In the second stage of the programme, these women were to be approached for the primary group discussions in addition to the regular educational programme.

A newly developed section of the town, in which both new residents migrated from the rural areas and residents from the old township were housed, was used as a control area. This area received the regular educational approach without primary group discussions.

First a survey on sanitary conditions, including sewage and garbage disposal, fly prevention and killing and food and water protection was carried out by the health educators in a sample of both areas. Every 6th home was visited, which meant 240 houses in the old township and 160 in the control area. The two areas were not strictly comparable (sanitary conditions were better in the older settlement), but in both areas there was much room for improvement.

For the primary group discussions in the study areas, each selected key woman was asked to invite her friends to her home at an agreed time to discuss the programme with the health educator. The total number of meetings thus held was 192, attended by 998 women. Only one meeting was held per group, and this lasted between an hour and an hour and a half. The size of the groups varied from 2 to 7, with a mean of 5.2. It was estimated that in this way about 62 per cent of all families were reached.

Discussions were very free, the health educator playing a permissive and peripheral role. Records were made of the subjects of the discussions and of the references made to the implications of these subjects for certain groups or categories of people, such as parents and infants. Sanitation (43 per cent) and

infectious disease (25 per cent) were the main topics; but other fields, e.g. the use of the medical services (17 per cent) were also frequently discussed.

After ten weeks of sanitation education, the survey on environmental sanitation conditions was repeated, showing a significant change for all six items in the study area, with 58 per cent of the families changed in the desired direction, as compared with 19 per cent of the families in the control area. The only significant change in the latter area, i.e. safe water storage, was accounted for by the installation of house connections in that district in the same period. Continued adoption of improved environmental sanitation was not measured.

KW: environmental sanitation, evaluation, health education, leadership, media and methods, practices, women.

116. STROMBERG, J.

(WHO, Division of Strengthening of Health Services)

Community participation in water supply and sanitation programmes: suggestions for priority research areas and strategies, paper continued to the Research Study Group Meeting on Appropriate Technology for Improvement of Environmental Health at Village Level, New Delhi, 16-20 October 1978, WHO/Regional Office for South East Asia, SEA/EH/RSG Meet 1/4/26, (10 October 1978), 9 p.

DA: -

CO: -

AN: A distinction is made between the necessity to identify or develop appropriate technologies ('hardware') and to define and overcome major behavioural and operational problems ('software'). The interaction between the hardware and software of appropriate technology will be essential for the solving of water supply and sanitation problems at village level.

Community participation is a key factor, but there is an unfortunate tendency to interpret this in terms of "cheap labour" and to burden the villagers with too heavy responsibilities, while the assessment of the community's own needs and priorities, as seen by themselves, is neglected. A second misconception is the assumption that the communities lack the ability to define realizable needs and priorities, and to choose, plan and implement solutions, so that intervention strategies are technically oriented and centrally based. Outside expertise is necessary but must be made to harmonize with community priorities and needs.

The primary health care approach calls for a partnership between the participating community and extra-community resources and support, and close links with other sectorial activities, such as nutrition, mother and child health, immunization, family planning, education, agriculture, housing, etc.

Research priority should be given to matters of installation and maintenance. With large percentages of pumps out of order, it seems more reasonable to focus first on problems of providing and maintaining pumps than on attitudinal questions of why people do not use pumps when they are provided. Other research priorities are the development of training programmes for technical staff to work with communities rather than for communities, planning methods which can be used by communities, schedules for construction and operation, which are adapted to the time frame and work habits of the community, adapted arrangements for loans and financial support mechanisms in construction and maintenance and adapted management/collective/financial schemes.

Most research attention should be directed towards community oriented operation and maintenance schemes, including the development of training and maintenance schemes for local technicians, with the extra community support necessary. For this reason multidisciplinary teams are necessary to assure that behavioral questions and problems relate to the technical design and testing. Emphasis should be placed on directly applicable results, necessitating the improvement of communication channels between the various levels and agencies and the building-up of multi-disciplinary institutional strength.

KW: felt needs, manpower, operation and maintenance, research.

117. TENTORI, F.V.

(WHO, Orissa, India)

Their Needs and Knowledge,

International Journal of Health Education, 5 (1962)

10-17

DA: -

CO: Mexico

AN: Although recognized as an important factor in improving health conditions, health education is not sufficiently emphasized in public health programmes. Other deficiencies are the lack of knowledge of the culture, socio-economic conditions, interest, desires and health knowledge of the target groups and

insufficient attention paid to evaluation.

The necessity of an initial study is stressed. Through this study the health educator should acquaint himself with the total socio-cultural aspects through participant observation, questioning and dialogues.

This learning approach is illustrated with a discussion of a latrine construction initiation programme in Arocutin, Mexico. Joint problem identification was followed by a guided discussion on worm infestation (one of the felt problems) and its perceived causes and solutions, with the audience drawing its own conclusions.

The author concludes that preparatory research and evaluation are neglected elements of many public health programmes and that programmes should be based on an anthropological, sociological and economic study of the community. Specific educational programmes should be elaborated at the local level.

More attention should be paid to the health educator's attitude towards the human group. The training of health educators often suffers from a faulty verbal preparation, over-reliance on and misuse of audiovisual aids, incorrect application of certain methods and insufficient attention to the collection of information about the target individuals or groups.

KW: excreta disposal, felt needs, health education, health knowledge, methods, research, training.

118. THORAT, S.S.

(National Institute of Community Development, Hyderabad, India)

Influence of traditional and non-traditional status on the adoption of health practices, *Behavioural Sciences and Community Development*, 3, (1969), pp. 38-50

DA: -

CO: India

AN: A sample of 246 respondents, farmers with at least

2.5 acres and below 50 years of age, from two villages in Maharashtra state, India, were interviewed on the adoption of agricultural and health innovations. The latter included smallpox and cholera vaccination, bedbug prevention, making drinking water safe, malaria prevention and the use of modern childbirth practices.

The adoption of these practices was related to variables of personal, social and economic background, social psychological aspects, indicators of an orientation at a wider world (cosmopo-

litanism) and the use of communication media. It was found that education and caste were strongly associated with adoption, while age and education of the spouse made no appreciable difference. Level of living was also found to be significantly related to adoption, while size of holding was not. Political knowledgeability, self-reliance and empathy (ability to picture oneself in other people's roles), urban contacts and stay outside the village, cinema going, newspaper reading, radio listening and change agent contact were all positively related to adoption, while secular orientation and interpersonal trust did not contribute.

When the data were analysed, after controlling for the two major determining variables: social status and level of living, it was found that for the high castes the other personal and social background variables no longer make a significant contribution towards adoption, with the exception of urban contact, newspaper reading and change agent contact. In the lower strata, a higher educational and caste status, political knowledge and empathy, cosmopolitanism and the use of communication channels did lead to a significant difference in the adoption of health practices.

KW: adoption of innovations, communication media, environmental sanitation, extension, inequity, preventive health, practices.

see also: ROY (1968), and
THORAT and FLIEGEL (1968)

119. TIGLAO, T.
(Rural Health Demonstration and Training Centre)

A re-evaluation of health practices in a Philippine rural community, Ph.D. (ed.), Columbia University, (1963), 252 p., 12 app.

DA: 1950-1960
CO: The Philippines

AN: In 1950 an intensive public health programme was launched by the Philippine government, UNICEF and WHO, through the Rural Health Demonstration and Training Centre in Novaliches Health District, the Philippines. This programme was evaluated after ten years to determine the changes in health practices as indicated by 17 health indices, including environmental sanitation practices, to identify the factors related to the changes, and to study the dynamics of these changes.

A baseline was established through a house-to-house survey of the total population, on socio-demographic characteristics, immunization, mortality and morbidity, health services, nutrition, and environmental sanitation. This included housing, drinking water supply, cooking and washing facilities, food storage, excreta and refuse disposal, domestic animals, drainage and insect breeding places. The survey was supplemented by 11 special studies including the incidence of intestinal parasites in schoolchildren and the re-infection rate, the refuse collection system and subsurface drainage with bamboo pipes.

An integrated health programme was then introduced. Various health services, were upgraded, such as mother and child care, dental health, home deliveries and a school health programme directed at environmental sanitation and nutrition, in which the parents were involved through the parent-teachers association and meetings on the stool examination results. An environmental sanitation programme was developed with the regular testing of water quality and placarding of unsafe sources, the drilling of new public wells, a sanitary latrine construction campaign, inspection of food establishments by the Sanitary Inspector, resulting in foodhandlers' classes, a blind drainage and composting programme in cooperation with the Bureau of Agricultural Extension, the Quezon City Health Department and the Division of Schools, and improvement of the public cemetery. The programme was completed by an infectious disease control campaign including case finding and immunization; a vital statistics programme; a social welfare service; laboratory services and a special health education programme.

This last programme consisted of health education instruction for all health centre and school personnel, personal contacts in clinics, schools and home visits, a group programme, with special classes for mothers, fathers, teenagers, farmers and foodhandlers, as well as various workshops, meetings and assemblies, linkage with other extension programmes, such as nutrition, agricultural extension, community development, agricultural husbandry, marketing, credit and cooperatives and a mass media programme, using posters, pamphlets, leaflets, charts, and press releases.

The Citizen Committee, composed of community authorities and leaders played an active part in this programme, which resulted in among other things, the construction and repair of water supplies in schools and public places, the naming of streets and numbering of houses for homevisits, the construction of public toilets and the distribution of fertilizers.

The evaluation studies, carried out after ten years contained a re-survey of an at random sample of 18 per cent of the original population (227 families, a recovery rate of 93 per cent) of which

225 were interviewed. Questions were added on the ten most significant general and health changes in the community and the identification of ten key persons.

The special studies on parasitic infections, dental decay, nutrition and birth registration were repeated. Depth interviews with 18 strong adopters and 18 strong rejecters, using projective incomplete statements. The ten most chosen leaders of social and health changes were interviewed. A review of the annual reports and other agency reports and the experience collected through participant observation in the centre's programme completed the picture.

Of the 17 health indices established, only the incidence of intestinal parasites had not improved significantly (a decrease from 73.45 per cent in 1950 to 72.56 per cent in 1960). This is attributed to the insufficient construction and use of latrines, especially by younger children (as confirmed by a higher incidence among the lower age groups), a lack of general hygiene, and the absence of a safe public water supply system. The presence of latrines had increased from 7.9 to 71.11 per cent, refuse disposal by burning from 16.74 to 70.22 per cent and the provision of safe drinking water from 7 to 31 per cent.

Only 8 per cent of the sample was found to have strong rejecters, i.e. non-users of the health services, without any changes in health and sanitation conditions and practices. These rejecters were found to have a lower literacy and occupational level, to live farther from the health centre and to be unable to identify any community leaders.

Key figures in community and health affairs were found to belong to the established families. Lines of communication were the leading political party and church, and the Parent Teachers Association. No mention was made of any non-local experts, such as the centre's health workers.

Included among the appendices are the survey guide, the case studies of the strong adopters and rejecters, and samples of the programmes for the health education classes.

KW: bibliography, evaluation, environmental sanitation, health education, leadership, media and methods, preventive health.

120. TOMIC, B.; NIKOLIC, A.; TOMASEVIC, V.
(Institute for Health Education, Belgrade, Yugoslavia)

Ivanjica: a community conquers health, supplement to the International Journal of Health Education, 20, 2, (1977)

DA: 1954-1974
CO: Yugoslavia

AN: A description of a health and sanitation education programme in an underdeveloped area of Yugoslavia, which initiated a series of self-help health and sanitation projects (village water supplies, local health station, school canteen and garden and a latrine and garbage disposal system). Direct contact between health workers and the community was promoted. The health workers gained the support of influential individuals and associated with voluntary organisations. Health committees for each individual project were created with their assistance and contracts specifying the responsibilities of all parties concerned were drawn up. A considerable part of the paper is dedicated to the case history of the construction of one village water supply, discussing felt needs, community participation and community organization. The project acted as a catalyst to overall rural development.

KW: community organization, felt need, health education, progressive development.

note: This programme has also been reported in V.Djukanovic and E.P. March, *Alternative Approaches to meeting basic health needs in developing countries*, WHO, Geneva, (1975) pp. 67-70.

see also: UNICEF/WHO JCHP (1977)

121. TWUMASI, P.A.; YANGYUORU, Y.; BANUAKU, A.F.

A sociological study of rural water use, project report for Ghana Water and Sewerage Corporation, Rural Water Supply and Environmental Health, Lagon, (1977), 124 p.

DA: -
CO: Ghana

AN: Report of a study of 6 rural Ghanaian communities on the socio-cultural aspects of water usage and water supplies. The 6 communities were chosen from the 3 main geographical and cultural areas of Ghana, one with and one without modern water supply facilities per area. One community was replaced by another for lack of cooperation, for which no reasons are given. A stratified at random sample of the households was taken in each village and data were collected on some socio-economic cha-

racteristics and attitudes and practices regarding water supply. The samples were split up into 2 categories separating children under 15 and adults. Socio-economic characteristics measured for children were sex, education, literacy, income, religion and employment status, but not in all villages. Data regarding water use were purpose and source of water, frequency of use, frequency of bathing and place of bathing. Adults were divided according to sex, age, income, marital status, number of wives, number of persons per household, religion, literacy and education. Questions were asked about water usage and attitudes. They concerned the source of water supply, distance, alternative sources, usual water collector, water storage, purposes, rules, taboos, rituals, myths and beliefs on water usage, preferred types of supply and reasons (for modern supply only), community action to safeguard water, knowledge of water-borne diseases, responsibility for supply, wish for modern supply, willingness to contribute financially, responsibility for construction, suggestions on maintenance and expected changes. Not all these characteristics and topics were covered in every village, however, nor were answer categories consistent.

The data are reported per category per village. No overall tables are given, which prevents a detailed comparison of villages with and without a modern water supply and a generalization of results. The 3 villages questioned on various types of illnesses, for example, show interesting differences. No attention is paid to the reasons why some people still preferred a traditional water-supply.

The main conclusions given are that in 2 areas children were responsible for water collection and in one girls and women, early in the morning and evening, causing "rush hours" at the sources and piped water supply points. The traditional and modern water supply users did not differ in water habits and availability was the main determinant of water use. There was a general feeling of apathy about breakdowns in modern water supplies due to the reluctance to report to the authorities for fear of being disrespectful. Respondents were willing to pay for water use and to contribute an initial sum for installment, preferring standpipes at a distance of not more than 7 minutes. Other types of supply were also acceptable. The best local approach was considered to be the village or town committee. The committee should also have the responsibilities for maintenance, cleanliness and the reporting of deficiencies. Interesting is the intermediary role of the "queen-mother", apparently a women's leader.

The long-term effects of modern water supplies suggested are improvement of public health, lower child mortality (increasing the necessity for family planning), stimulus to the "back to the

land" movement and possibilities for the inception of small scale home industries like soap making and oil processing.

Finally, some recommendations on the installation of rural water supplies are given.

KW: administration, attitudes, health and economic impacts, knowledge, maintenance, practices, water use

122. UNICEF/WHO Joint Committee on Health Policy

Community involvement in primary health care: a study of the process of community motivation and continued participation, (Final Draft), Geneva, (1977d), 56 p., 9 ann., 2 app.

DA: -

CO: Botswana, Costa Rica, Indonesia, Mexico, Senegal, Sri Lanka, Vietnam, Western Samoa, Yugoslavia.

AN: A descriptive study of community participation in rural development projects in developing countries/areas, based on 9 case studies selected for their variety of ecological, socio-economic, cultural and political background, multi-sectorial activities, low-cost design, continuity, acceptability and effectiveness. The projects selected were situated in Botswana (education and rural health), Costa Rica (rural health), Indonesia (education, agriculture, water supply and an - unsuccessful - sanitation project), Mexico (nutrition, infrastructure, hydro-electric power, local industry water supply, etc.), Senegal (rural health), Sri Lanka (need identification and problem solving abilities, education, agriculture, public health and community leadership training), Vietnam (rural health), Western Samoa (rural health), and Yugoslavia (rural water supply).

For each project a description is given of the demographic and socio-economic situation, the formal and informal organizational structure, mass media and infrastructure, health status and (government) activities in rural development. This is followed by an analysis of the patterns of community participation, in which those factors are isolated which are thought to have contributed to the success of the project.

All the projects described were characterized by a high level of community organization, a high degree of cultural and social homogeneity, a long tradition of self-help and development activities, and government (and other) support.

A number of conclusions are drawn from the various case

studies. Conditions necessary to the success of the projects were: a government policy supporting community participation; the mobilization of local resources, leaders, personnel, financing, materials; the supplement of local resources by external (especially government) resources; administrative decentralization and regional planning; special government plans for urban and rural development; special sector development programmes; the provision of community participation channels by non-government agencies; a regional and national communication network and infrastructure; the identification and incorporation of traditions and traditional structures; the presence of "felt needs" and a readiness for change; the creation of an awareness of the benefits of community participation; emphasis on children as direct beneficiaries, as a starting point for further community efforts; ethnic and cultural homogeneity and absence of extreme factionalism and inter-group friction; and finally the possibility of covering a varied developmental range.

KW: evaluation, felt needs, planning, primary health care, progressive development, social structure.

sée also: TOMIC et al, 1977 WHO/Regional Office for the Eastern Mediterranean (1977)

123. USAID

Education in health, U.S.A.I.D., Peace Corps, Division of Volunteer Support, Washington D.C., n.d. (circa 1964), 115 p.

DA: 1962

CO: The Philippines

AN: Report of the Asian Health Conference at Tagaytay, The Philippines, 1962, on the planning of health education programmes. Four workshop subjects were selected, through questionnaires to the participating countries: malaria eradication, school health, maternal and child health and environmental sanitation.

The following topics are discussed: identification of health and health education needs and the health workers themselves (both professional government and non-government, traditional health workers, other agency personnel, community leaders and members of voluntary organizations); training and responsibilities, followed by the planning of the educational component in a health programme (objectives, data collection, priorities, target groups

and communication structure, organization and administration) and the functions of a programme administrator and a health educator.

Case studies of pilot projects, are simulated e.g. on environmental sanitation (rural water supply, excreta disposal and sanitation education), in which community participation takes place through health committees.

The two methods for mass information selected and discussed by the participants were bulletin boards for information within the programme organization and the community and flannel boards for a mass approach in sanitation education for the two target groups selected, schools and housewives.

Attendance and activities reports provide continuous evaluation of the health educational component of the programme, by identifying and reporting constraints found in project workers and target groups.

KW: administration, environmental sanitation, evaluation, felt needs, health education, manpower, media and methods, planning.

124. VERSTEEG, J.H.F.

(Ministry of Foreign Affairs, the Netherlands)

Motivation and local involvement, paper contributed to the Symposium on Community Water Supply in Development Cooperation, Royal Tropical Institute, Amsterdam, (February 1977), 8 p.

DA: -

CO: -

AN: The author distinguishes a number of human motives for an improved supply. He concludes that only the need for drinking water to quench one's thirst is an essential need. The fear of disasters, e.g. after earlier experiences of long droughts, is a strong avoidance motive in favour of an improved supply. The distance to the supply and the absence of alternative sources may be another strong motive, while a third avoidance motive, the fear of disease, depends on the perceived or learned link between water and disease. A germ theory linked to local religious beliefs may be a useful educational tool.

Participation of everyone in the decision making and selection process appears to be a condition for any collective achievement. Alternative improved supplies for settled populations are classified in order of complexity. They include lined wells, rainwater storage tanks, various water raising and distribution systems and

water purification methods.

For reasons of maintenance, the system chosen should preferably be only one step ahead of the existing system but capable of future extensions.

A motivational programme with relevant information and demonstrations is often needed to obtain a decision in favour of a water supply.

Structural constraints may be the existing labour divisions, with women traditionally supplying the household water without complaints, and the existing socio-economic stratification of the area and community. Poorer communities and groups are harder to persuade and a strong communal solidarity, guaranteeing a choice that equally benefits these groups, is usually lacking.

In addition, there may be cultural constraints, such as religious values and beliefs, taste and the apparent contradiction with earlier official messages (compare for example the superiority of unpolished over polished rice with the superiority of purified over untreated water).

The motivational programme should be the responsibility of the various levels of national government. Local government should assess a community's capacities and either leave it to organise itself, or help in setting up a water organisation. The higher levels should integrate health department services, water development activities, food promotion and animal husbandry.

KW: constraints, inequity, planning.

125. VERTINSKY, P.; VERTINSKY, I.; ZALTMAN, G.
(University of British Columbia, Vancouver, Canada)

Health innovation diffusion: an integrated model, *International Journal of Health Education*, supplement to 15, 1, (1972), 24 p, (English, French, German summary).

DA: -

CO: -

AN: An information-diffusion model to evaluate the effectiveness of health education, in particular via mass media, in changing individual health behaviour through social-psychological processes. The linear model covers three subsystems: information processes, action-oriented processes, and evaluation and feedback, with feedback loops for the dynamic element. It concentrates on socio-psychological variables influencing the information reaching the individual and his decision and action taking. Seven selective processes are described which influence

information (selective exposure, indirect exposure, selective perception, perception of health, selective attention, reassessment of knowledge, and prior subjective information). Seven factors which influence decision making are perceived susceptibility, perceived seriousness, evaluation of actions and their benefits, control beliefs, time perception, perceived benefits not related to health and evaluation of barriers to action. Some attention is paid to external variables (availability, accessibility, economic and socio-legal constraints).

One of the resulting behaviours may be preventive action, which is positively related to socio-economic status, perceived susceptibility and perceived seriousness. Personal communications to supplement the mass media information are considered important, but they are not further discussed. Another limitation of the model is the emphasis on the individual, with very few links with the social system.

KW: evaluation, health education, mass media.

126. VERTINSKY, I.; ARANGO, J.; ECHEVERRI, O.
(University of British Columbia, Canada)

Traditional health care system: potentialities for legitimization and integration, *International Journal of Health Education*, 13, 4, (1979), pp. 142-148.

DA: 1969

CO: Columbia

AN: Report of a study of the University of Valle, Colombia, on the use of traditional health systems in primary health care and health education, as an alternative for the Chinese model. In two zones of an urban fringe area an unspecified number of interviews were carried out with a random sample. Respondents were asked whom they contacted for traditional medical assistance in case of various diseases. The individuals mentioned were identified as full-time or casual traditional practitioners and fourteen practitioners were selected from the first group for interviews and personal observations. They could be distinguished into "verbateros", who rejected modern medicine and did not want any link, and "empiricos" who had already some links with modern medicine (training as auxiliaries, knowledge and terminology) and who favoured increasing participation.

The authors see the modern medicine oriented traditional practitioners as an effective channel of health education to

supplement various primary health care activities. They are willing to participate in a loose incorporation with the national health structure and are able to speak the people's language, functioning as a semantic link between mass media, health campaigns and the community. They can identify "soft" areas for penetration and change in the local health culture. Actual health knowledge of these "empiricos" was found to vary, with a sensory definition of unsanitary conditions. They used unboiled water for washing syringes, for instance, but pointed to "black" water as a source of disease.

KW: communication channels, health beliefs, health education, manpower, sanitation knowledge.

127. VIERSTRA, G.A.

(Department of Social Research - Royal Tropical Institute, Amsterdam)

Towards a fuller appreciation of community involvement, Paper presented at the International Training Seminar on Community Water Supply in Developing Countries, at the Royal Tropical Institute Amsterdam, 6-10 September, 1976; published in International Training Seminar on Community Water Supply in Developing Countries, WHO/International Reference Centre, Bulletin series 10, (November 1977), pp. 147-158.

DA: 1969-1974

CO: Kenya

AN: Local participation in water development projects should not be limited to self-help activities in the construction phase of a supply, but include identification of community priorities, collective decision making and cooperative action to attain designated goals. An example of gradual mobilization of community involvement for an improved water supply is the Kiaria Self-Help Water Project in Central Kenya. The project, extension of the hydro donated to the local secondary school for the village water supply, was initiated in early 1969 by two community leaders. A committee was formed, including six other men and two women, and the project was discussed in the weekly village meetings, in which initial contributions in both labour and cash, membership fees and monthly maintenance payments were fixed. At first scepticism prevailed, and only 20 per cent of the local households joined the project. The membership meeting voted for home standpipes, but against irrigation, private storage tanks and water meters. Problems due to attempts of an influential

villager to change the siting of the supply extension were solved by technical arguments (the insufficient altitude of the site). Construction began in August 1969 and membership rose to 40 per cent. Problems with failures to fulfill labour obligations resulted in the decision of a general meeting to strike the members concerned off the rolls. Construction was completed in July 1970.

Pollution from upstream villages was a problem, but suggestions for quality improvement were rejected in favour of a cattle dip in 1972. In 1973 project members voted for contributions for an additional electric pump to increase water quantity. Membership continued to grow and in 1974 80 per cent of the households had joined, paying an extra sum to compensate for failure to provide free labour. Disconnections due to failure in paying maintenance fees were few. Apart from domestic use, piped water was used for watering domestic animals, and average use was 35 litres per head per day. Because of its muddy appearance only half of the members used it for drinking water; many preferred to continue using rainwater or well water for this purpose.

Socio-economic impacts of the improved supply have been an increase in cattle raising, including the construction of a cattle dip, an extension of similar water projects to adjacent sections and a project for electrification.

The author concludes that local initiative, commitment to wide responsibility, user participation in project decision making, even distribution of benefits and gradual mobilization of the community by sustained efforts all contributed to the success of the project. He stresses the influence which the stage of development of the community has on its capacity for successful community involvement, and advocates the use of "mobilizers" for guiding the community involvement process, when communities lack a "cooperative mind". Suggestions for a community participation approach are to use personnel trained in mobilizing communities, to begin community participation at the earliest possible phase and to promote participation by women whenever culturally possible. A high degree of community control be accepted over all project acts and decisions in planning, design, construction, operation and maintenance phases. This implies the use of technologies suited to village levels. Community members should be trained in management administration, maintenance and repair and a clear definition and division of responsibilities of government and community should be made. A social analysis is necessary in addition to the usual technical/health/demographical ones, on a major (regional) scale prior to selection and allocation, in order to classify villages on the degree of probable receptiveness to an improved water supply. Action research on the process of community involvement should be included in rural water programmes, and a

reference catalogue of management systems, based on case studies of water supply projects under various social, economic and cultural conditions should be compiled.

KW: administration, economic impacts, evaluation, felt needs, implementation, maintenance, planning, research

128. WAGNER, E.G.; LANOIX, J.N.
(WHO)

Excreta disposal for rural areas and small communities, WHO, Geneva, 39, (1958)

DA: -
CO: -

AN: In an introduction to a technical manual on various types of excreta disposal devices, the authors point out the necessity of community participation and health education in order to promote a self-sustaining and expanding rural sanitation programme. The authors suggest a family approach, starting health education with those people who come to a health centre or dispensary for intestinal disorders, and extending it to public demonstrations and discussions, with visual illustrations based on local situations. When the decision to adopt a latrine has been taken, a simple, economical and culturally acceptable solution using local materials should then be possible. Construction with local participation should be followed by continued personal contact with health personnel. Two other approaches mentioned are contacting all heads of families simultaneously and approaching opinion leaders first, so that latrines can become status symbols in the community. The use of campaigns in areas with a lack of organized community services and a low economic level is discouraged.

The planning of an excreta disposal programme includes a section on health education, but no attention is paid to this topic in the planning of courses for sanitary personnel.

KW: excreta disposal, extension, health education.

129. NEW SOUTH WALES DEPARTMENT OF HEALTH

Manual of health education, Melbourne Division of Health Education, New South Wales Department of Health, Australia, (1972) 132 p.

DA: -

CO: -

AN: An introduction to health education for professional health workers, which covers sociological and socio-psychological concepts related to preventive health, such as culture, social customs, roles and class, health attitudes and processes of change and communication.

Planning and evaluation of health education programmes are discussed. Planning should include problem definition, preliminary data collection and discussions on actions and resources with a number of people interested in the problem. This is followed by more extensive data collection and analysis, discussion of its results with local people, determination of objectives with local participation, identification of constraints which demand cooperation of individuals, cooperation within the community, and outside action and selection of priorities. Then a plan-of-activities, is prepared including choice, definition and recording of media and methods to be used (personal visits, demonstrations, meetings, discussion groups, brochures and pamphlets, press, radio, exhibitions, films, slides), as well as timing and delegation of responsibilities.

Social and organizational competencies of the planning leader are stated but no training programmes are mentioned. Local involvement in programme planning by the formation of an initial formalized group of participants, who have tangible relationships to other groups in the community, is emphasized.

The manual also discusses evaluation, varying from casual every day evaluation to social research (before-after surveys and experimental designs), as well as pretesting for exposure, attention, interest, motivation, comprehension, understanding of purpose, learning and retention.

The various health education methods discussed are home visits and personal interviews, office management, group dynamics and meetings, speeches and lectures, popular health publications (including their readability), mass media and the use of audio-visual aids (blackboards, cartoons, charts, episcope, filmstrips, slides, flip charts, flannel boards, loop projectors, motion pictures, models, overhead projection, posters, flash cards, tapes).

KW: evaluation, health education, media and methods, planning, training.

see also: WHO/Regional Office for the Eastern Mediterranean (1977)

130. WARNER, D.
(Duke University, Durham, N.C.)

Evaluation of the benefits of rural water supply projects in Tanzanian villages, *Journal American Water Works Association*, (June 1975), pp. 318-321

DA: 1968-1970
CO: Tanzania

AN: Following a study of existing literature and interviews with government officials, water engineers, university researchers, missionaries and villagers, a list was drawn up of 30 alleged benefits of improved rural water supplies. They were divided into 6 categories: health benefits, economic benefits, ujamaa socialism benefits, self-reliance benefits, modernization benefits and education benefits.

A field survey was carried out in 15 Tanzanian villages, which had widely varying economic, ethnic and social conditions, and also different water supply systems.

A second survey was carried out after 4½ to 7 months, during which time eight of the villages had improved their water-supplies. Data were collected by interviewing a random sample with standardized questionnaires, by field measurement and observation, unstructured interviews with local officials and study of government reports and records.

Results indicated that a total of 87 benefits occurred in the 15 villages, 61 of which were recorded in those with an improved supply.

Health benefits varied most, while modernization and education benefits were equally distributed. In order to relate the impact of the various benefits, they were classified according to time effect (rapid, intermediate or slow), causality linkage (direct, intermediate or indirect), measurement validity (high, intermediate or low) and occurrence frequency (idem). Priority benefits were determined for project evaluation. For Tanzania these were short term results without complementary investments. The project villages were then ranked and compared on these benefits. This resulted in ranks one through six and numbers ten and eleven for the villages with a modern supply, the remaining levels being for the villages without a modern supply. No attempt was made to compare the successful villages with a modern supply with those that were less successful.

In a reply to the article in the April 1976 issue, Richard Feachem criticized the qualitative nature of the variables measured.

KW: evaluation, health, economic and social impacts,

research design.

131. WELLIN, E.

Water boiling in a Peruvian town: evaluation the results of a rural hygiene project, in I. Brady, B. Isaac (eds.), *A Reader in Culture Change*, Wiley, New York, 2, (1975), pp. 231-259.

DA: 1953

CO: Peru

AN: An anthropological case study to analyse the poor response (5 per cent overall change in sanitation behaviour) to an intensive campaign to introduce water boiling in a small Peruvian community. 36 housewives were studied, of whom 15 already boiled water, 11 started doing so after the campaign and 10 did not.

A major constraint was the existence of a complex value system of hot and cold distinctions, which linked boiled water with illness. Factors found to be related to acceptance before the campaign were conformity to this value system (8 of those already boiling water were ill) and cosmopolitanism (persuasion by relatives from towns with a modern water supply). During the campaign personal contracts between housewives with a marginal position in the community, the health visitor's advices and authorization of deviant behaviour by the visiting physician were instrumental for acceptance. Rejection was either due to cultural conservatism or to limiting conditions such as fuel scarcity and lack of time caused by a rigid timetable dictated by socio-economic circumstances.

Another negative factor was the low credibility of the health visitor, an outsider (notwithstanding careful matching) without a clear function or introduction. The same message was directed to all, rich or poor, and the visitor had a low authority compared with the occasional visiting physician. Lack of interest on the part of male opinion leaders and negative influence of female ones (traditional birth attendants) also counteracted the campaign.

The best results were in the middle class group where these constraints were overcome through socio-economic and cultural affinity between health visitor and participants. Reinforcement through lectures by a change agent with a higher authority was also effective in some cases.

Although very limited in scope, this study discusses some common extension problems in developing countries and shows the necessity of differentiation of change agents and messages for the various social groups.

KW: beliefs, constraints, health education, media and methods.

note: also published in

B.D. Paul (ed.) Health, Culture and Community, Russel Sage Foundation, New York, (1955), pp. 71-103

and in

E.M. Rogers and F.F. Shoemaker (eds.), Communications of Innovations, The Free Press, New York, (1971), pp. 2-5.

132. WHITE, A.

(Institute of Development Studies, University of Sussex)

Outline for the extension component of the slow sand filtration project, Working Document I of the International Meeting on Extension and Community Participation in the Slow Sand Filtration Project, Voorburg (The Hague), The Netherlands, 29 May-2 June 1978, WHO/International Reference Centre for Community Water Supply, (March 1978), 64 p.

DA: -

CO: -

AN: To ensure the continued functioning of a slow sand filtration system for community water supply with an optimal impact on village health, it will be necessary to develop and maintain favourable attitudes towards the system and enhance the cooperation of the community. Community organization should be promoted with regard to the construction and financing of the supply. Operators should be selected, trained and supervised and arrangements have to be made for external and community support. Special attention must be paid to a proper behaviour in relation to the preservation of the purity of the water between collection and consumption, water access and the avoidance of damage to and pollution of the supply and its surroundings and personal hygiene and sanitation. The (quantitative) monitoring of this process will also have a predictive and learning value.

An essential element is the participation of the community, though the intensity of the involvement can vary greatly, as expressed in a scale of definitions of community participation. For successful implementation alone it may be sufficient to involve only a small group of community representatives and individuals, whereas a maximal approach may stimulate long-term

village development.

Participation will also be important for the realization of the necessary changes in environmental sanitation behaviour. People change their behaviour because they understand the necessity, follow the example of a reference group, accept authoritative statements, are influenced by informal social rewards, or because of formal sanctions. It is suggested that - in consultation with the community - the desired sanitary behaviour changes in a particular village situation should be listed and matched to strategies based on the above reasons for behaviour change.

After this conceptualization the methods and techniques for a strategy of community involvement are discussed. In an initial meeting with the village authorities basic information on the project should be given, such as the financing of construction, operation and maintenance, technical designs and village labour contributions. The extension agent should then make informal contacts with all sections of the community, engaging them in dialogues concerning the proposed project, organize a supply committee when necessary and start gathering baseline information. He/she should work towards acceptance of the programme through consultation of community representatives and members when the village itself has requested the supply, or otherwise through the evaluation of the existing water sources. The type and degree of cooperativeness in the village should be determined by asking about previous projects, by comparing the information from individuals of various groups, by including the non-dominant members in the process by interviewing persons, who show no interest, or by using projective techniques. Relevant features of the social structure, for which a typology on village power can be constructed, and the point where water pollution occurs are further objects of study in this phase.

As a follow-up to the consultation on behavioural changes, the extension agent should invite the same group of community representatives to choose a continuation of education methods including group teaching, group discussions, individual teaching and dialogue, visits to model sites, practical demonstration e.g. on latrine construction and organization of a community self-survey.

Teaching Aids which may be useful are microscopes, visual aids including flipcharts, flannelgraphs, blackboard and chalk, and videotape or film and local art performances. Care should be taken that they do not take up too much time or effort at any level. The relevance of several techniques for special messages is also discussed, including the facilitation of behaviour change through the acquisition or local production of facilities.

The mobilization of self-help may be hampered by a number of difficulties, such as unrealistic expectation, poor coordination, poor quality of work, timing of activities, status problems, previous negative experiences, inequity problems, and changes in the position of women. Various suggestions for their solution are made.

Training for operation and maintenance should be practical and organized in the field, with regular supervision. Attention should be paid to the technical problems which are most likely to occur and to the regular keeping of records. As the tasks will normally be only part-time, a combination with related work, e.g. that of the village health worker, may be considered. The financing of operation and maintenance, the safeguarding of the system and the provision of additional facilities will have to be discussed beforehand.

Extension agents should be trained especially on their sensitivity to village opinions, the carrying on of dialogues, and the stimulation of community involvement. On-site training is emphasized. The integrated character of the project makes the coordination between the community, the health education department and the water authority most important.

Evaluation of the programme includes procedures for summing up the experiences of each step of the implementation, the overall evaluation, from which conclusions can be drawn for the replication of the project and the assessment of project implications for the social structure.

Checklists on the elements of a maximal strategy for community participation, the use of other external organizations for extension purposes, the information on the transmission of water related diseases, the ways in which water supply projects might possibly lead to a worsening of the relative position of the poor and the tasks of the extension agent are added to the outline. In the appendix some suggestions are given for survey questions, including projective techniques.

KW: constraints, evaluation, extension, health education, manpower, media and methods, operation and maintenance, training.

133. WHITE, G.F.

(Institute of Behavioural Science, University of Colorado)

Domestic water supply, right or good?, in Human Rights in Health, Ciba Foundation Symposium, Elsevier, Amsterdam, 23, (1974), pp. 35-59.

DA: -

CO: -

AN: An alternative presentation of the world drinkwater supply problem is given, different from the WHO 1970 approach. It takes into account the various types of settlement (cities, peripheral and rural clustered areas and rural dispersed areas), the situation in developed countries and estimates for developing countries which did not take part in the WHO survey (totalling 55 per cent), the use of scales for the classification of health hazards and water amenities and the consideration of waste, waste water and human excreta disposal.

Based on this analysis as well as on a discussion of potential and existing constraints (water volume, technology, financing, administration, training and motivation, preferences and value systems) the author advocates a shift from water as an economic good to water as a human right. This implies the acceptance of flexible standards for the various settlement patterns and of self-help responsibility in rural areas.

In peripheral areas, where alternative sources are rare, this means the adoption of a financial and design policy which provides clean water for all people without elaborate repayment schemes. Levels of quality and quantity can be lowered to the minima at which the health hazard becomes acceptable.

In rural areas this new policy means determining local preferences and value systems first, followed by education on health consequences of improvements. Central contributions to the chosen local improvement are limited to technical assistance in planning, construction and operation of the type of supply which meets the aims of its users. Self-help responsibility should become a selection criterium for such assistance. The canvassing of the users should precede the design of the supply and the beneficiaries should be involved as deeply as possible in defining their needs and in designing, constructing and operating the improved supply of their choice. The discussion which follows centers around the advocated differentiation of standards and the cost-effectiveness of a cost-quality approach instead of cost-benefit analysis, as well as on cultural suitabilities of supplies. It is stated that minimal supplies to peripheral and rural areas could be financed from the revenue surplus of a progressive rate system for quality supplies in inner cities.

KW: attitudes, constraints, design, evaluation, financing, planning.

134. WHITE, G.F.; BRADLEY, D.J.; WHITE, A.U.
(Institute of Behavioural Science, University of Colorado

Drawers of water: domestic water use in East Africa, University of Chicago Press, Chicago/London, (1972), 306 p.

DA: 1965-1968

CO: Kenya, Tanzania, Uganda

AN: Two major needs can be discussed in domestic water supply in developing countries. One is the need for technology improvements in terms of water quality, quantity, delivery and the balance between supply costs and health costs. The other is the need for adaptation to users' aspirations, their acceptance of actual improvements, their water use patterns and their capability to contribute financially or by providing labour.

A cross-sectional field study was carried out in 19 East African sites (12 rural and 7 urban), where water had to be carried to the home, and in 15 urban sites with piped connections. It investigated the amount of water used and the social costs of use, the relationship between water quality/quantity, and health/health costs, factors of culture, social organization and natural conditions affecting the user's choice of water source and volume and the influence of government fund allocation on individual households.

The areas were relatively homogeneous in land use, but showed great variations in climatic conditions, water availability and standard of living. They were selected to give a general picture of circumstances representative of those in many developing countries. Households were selected by laying out a grid of 21 to 27 cells on a mapped area of 3 square miles, and identifying (by means of aerial photographs) those nearest one point chosen at random in each cell. Samples of 20 households for interviews and observations were thus obtained. Two validity checks were carried out.

After discussing all sites in detail, six classes of improved water supplies were developed, showing the theoretical range of choice open to people in developing countries and varying from no improvements (class 0) to: (1) individual improvements (source protection, roof drainage tanks), (2) group improvements (protection of source used by groups), (3) rural pipelines (standpipes, engine powered pumps, storage tank, gravity pipeline), (4) municipal standpipe (with water treatment tank if necessary), (5) single house tap system, and (6) comprehensive city system (multiple house tap).

An elaborate description of the four topics of investigation is given. The amount of water used is related to socio-demographic

characteristics (family size, age and sex composition, wealth index, education), customs and practices, character of the supply and costs in cash, time and energy. The range in social costs for water users is calculated in terms of direct monetary costs, proportion of a day's energy used for water collection (12 to 27 per cent depending on steepness) and amount of time spent on water collection (means from 27 to 84 minutes, and a maximum of 264 minutes).

Water quality and quantity are related to a great number of tropical diseases and 11 per cent of the deaths recorded by the Ministries of Health were found to be caused by water related diseases. Expected reductions in these diseases through greatly improved supplies range from 100 per cent (for guinea worm) to 10 per cent (for dental caries).

Investigation of the women's choice of water source led to a model of decision making by the individual user. All the supplies from which a woman could theoretically choose were listed by the investigator. Scores (from 0 to 2) were given for the women's perception of various aspects of each possible source: her knowledge of its existence, and her evaluation of its water quality, its technical feasibility (i.e. means of getting at the water), its economic efficiency, (i.e. costs in cash/time/energy) and its social access. A final score evaluating these aspects was then calculated by multiplying the first four factors and adding, or subtracting, the last and less important one. Main factors for rejection of known sources were economics (in 140 cases) and quality (91). Although the actual density could be over 16 sources per square mile, rarely more than five were mentioned.

The attitudes on water sources investigated were care for maintenance, showing enforcement of norms by personal comments and group discussions, informal periodic clean-ups, repairs in response to initiatives of concerned households and avoidance of poorly maintained sources; regulations on use (washing, bathing etc.) showing great cultural differences and evidence of a preference of private over public supplies; and finally willingness to pay (60 per cent to those answering were positive, but a large proportion had no opinion, and some opposition was found in all but three areas, increasing to over 50 per cent in the highly rural areas).

Government methods for designing and allocating water supplies have, up to now, been too far removed from the individuals for whom they were intended. The best procedure to predict responses to provision of local water would be participation in designing, constructing and operating the scheme. Next best would be to study water use habits and the factors accounting for the choice of water source.

Implications for a public policy drawn from the study are that different techniques of improvement should be used for different environments, e.g. gravity pipelines in highlands, roof drainage in high rainfall areas, source protection with concrete rings in guinea worm areas and double storage facilities in schistosome infected areas; and that small scale water developments by individuals and communities themselves are to be preferred to centrally planned schemes carried out and managed by the government. Examples are: improved traditional supplies offering up to 20 litres per day/capita with moderate contamination hazard, while cost is limited to labour for construction, maintenance and water transport. The design minimum would depend on the preferences and habitat of the people involved. Simple piped schemes for 40 litres per day/capita with low hazards of contamination are another possibility if the community is ready to bear part of the construction costs and perform all maintenance. Individual improvements should be systematically encouraged through information and technical assistance in design, construction and development of adapted technologies.

KW: adoption model, attitudes, bibliography, costs, design, evaluation, health and economic impacts, planning, policy, water use, women.

135. WHITING, M.; KRYSTALL, A.
(CARE, Kenya)

The impact of rural water supply projects on women, Nairobi,
n.d. 63 p., 2 ann.

DA: 1976-1977
CO: Kenya

AN: A study of water collection and water use patterns was carried out in 4 rural communities in Kenya. It dealt with the impact on women's time budgets and with perceived personal and general benefits, negative impacts and problems. The communities were chosen from 53 self-help water projects. Selection criteria were the varying potentials of the areas (high, medium and low potential) and the level of service (two schemes with communal water points, one with house connections and one with both). Self-help contributions in labour and local materials for 49 of these projects amounted to 41 per cent of the total costs. Data were collected before and after installation of a modern supply in 3 communities and from users and non-users in the 4th.

Reliability, representativeness and comparability of the data are low, however, because the 50 female respondents in each community were selected from the attendants of a public meeting called for this purpose, because the women interviewed during the follow-up study were not necessarily the same as those interviewed for the baseline and because data collection for the baseline was during the dry season, and for the follow-up during the short rains. The study should therefore be viewed as a series of case studies.

It was found that a negative relation existed between the number of trips and the time needed for collection, regardless of any improvement to the system. Six hours was found to be the maximum amount of time households were willing to spend on daily water collection. Some, or all, of the time saved through a closer supply was used for increasing the amount of water collected for household and animal use. Those families who used to fetch water regularly for various purposes about the house tended to go more often, and thus fetch more water from a closer supply. Families who usually fetched water for a specific purpose each time ("single-purpose trips"), did not, as a rule, go more often, consequently they gained time for other activities. No reduction in workload was found for the women interviewed, because they no longer got assistance from other (mainly other female) members of the household in water carrying. Appreciation of health benefits for children and adults was relatively low, but cleanliness of children and time advantages for children in the 3 communities where women had been assisted in water collection were valued. Other perceived benefits were time gains, personal hygiene, clothes washing for adults, regularity of meals in one village, and in another, with a high number of grade cattle, provision of drinking water for animals. The highest general advantage perceived in all communities was for farming in general, followed by cleanliness of the children (with regard to household hygiene), and attendance of meetings (regarding sociability). The main perceived negative impact was that of self-help activities on women's health, which was mentioned by 16, 14, 3 and 9 per cent respectively. Timing problems during self-help were negligible. Perceived negative effects for water haulers were mentioned in only one community by 3 per cent of the respondents. The complete questionnaire and baseline study data on 8 additional communities are added in two annexes to the report.

KW: costs, evaluation, financing, perceived economic, social and health impacts, water quantity, water use, women.

136. WHO/International Reference Centre for Community Water Supply

Community education and participation in the slow sand filtration project (Draft), Report of an International Meeting held in Voorburg (The Hague) The Netherlands, 29 May - 2 June 1978, WHO/IRC, 12, (July 1978), 60 p.

DA: -

CO: Colombia, Ghana, India, Jamaica, Kenya, Sudan, Thailand

AN: Rural water supplies should be planned and built in collaboration with the local population. Slow sand filtration is a technology in which such participation in planning, implementation and maintenance is very well possible. A community education and participation component has therefore been included in the cross-cultural project in which this technology is used. This component is developed by the National Health Service agencies of the seven countries (Columbia, Ghana, India, Jamaica, Kenya, Sudan, Thailand) which participate in the project. At the meeting, the programmes were harmonized as far as possible in view of the different socio-economic and cultural conditions of each country.

Community participation, means the active involvement of all sections of the population in the planning, design, installation, operation, maintenance and use of the supply and in the realization of better environmental sanitation practices and hygienic behaviour. It should include the presentation of alternatives, with education for a reasoned choice. Consultation with the community should therefore start before any steps for the installation of the supply have been taken. The actual form community participation will take during the implementation varies from situation to situation.

The change in practices should also be brought about voluntarily, through health education, by a continuous two-way communication, with the participation of the community in the process of education itself.

Community workers (a term preferred to "extension workers") should be employed for the necessary exploration of the community and the stimulation of dialogue. The position of the poorer sections of the community and the participation of women as the users of water should receive special attention. The community workers will generally be staff members of the health services department responsible for health education, who will be given a wider task, which demands additional training and supervision. In some countries the primary health worker may be involved. These community workers should inform the community on the goals of the project, the need for an improved supply, disease

transmission and technical information on the supply system. Information should be gathered about the community's response to the project goals, its social structure and present water quality and points of contamination.

It is advised that the selection, remuneration, (non-technical) supervision and control of the operator(s) be made a matter for the local community, and that the operators be involved in the health education. A combination of operator and primary health worker may be feasible in some cases, e.g. where operating managers are employed besides the regular operator(s). Supervision of technical maintenance by the water agency every three to four months, is strongly recommended.

The type of behavioural change and the methods to achieve it should be decided on in a continuous consultation process between the community worker and a representative group of community members. The most important condition for improved health practices is that the means for their realization are physically and economically available. Other methods and techniques suggested are individual and group learning and discussions, the use of local art forms, demonstrations, e.g. using a microscope and a community self-survey. Prestige could also be effective inducement. Educational aids and materials will be produced locally, but should not take up too much time or effort, since face-to-face communication will be more essential.

The evaluation will concentrate on the implementation, to monitor and modify this process, rather than on the long-term health impacts. It will measure the awareness of the facts of disease transmission and of the recommendations for better water and health practices, the acquisition or installation of new equipment related to sanitation or personal hygiene, the reported and observed practices in relation to sanitation and personal hygiene and the water purity at various points between collection and ingestion, in relation to health practices.

Administrative coordination between the health service and water agencies will need to be arranged, e.g. through joint committees or the establishment of a supply promotion unit within the water agency, in liaison with the agency responsible for health education. At the local level, a fully joint approach, e.g. through a coordinating committee, is advocated. In addition to the training of the community workers and operators, training should be offered to those community leaders who are particularly concerned with the project.

A general outline for the specific programmes of the participating countries was decided upon. It includes the creation of understanding and commitment at national and local level, the activities at village level during the preparation, implementation and evaluation and the programme support activities at other

levels. Training, the preparation of surveys, educational programmes, material and aids, the lines of administrative communication, financing, recording, time schedules and logistic arrangements, supervision and progress reviews, coordination and evaluation are such support activities.

The keynote address on communication and the summaries of the programmes of the participating countries with regard to community participation and education in the field of water supply and sanitation in general and the project in particular are added as annexes to the report. Checklists on disease transmission knowledge and the tasks of the community worker are also added.

KW: evaluation, extension, health education, implementation, media and methods, planning, programme administration, training, women.

see also: WHITE, A. (1978)

137. WHO/Regional Office for the Eastern Mediterranean

Health education with particular reference to the primary health care approach, Regional Committee for the Eastern Mediterranean, 27th session, Technical Discussions 1, (16 August 1977), 19 p.

DA: -

CO: -

note: this article has appeared in the International Journal of Health Education, as a supplement to volume XXI, issue no. 2, April-June 1978, Geneva, (1978), pp 19.

AN: The objectives and approaches of primary health care programmes are explained. They imply the involvement of the individual in the whole process of thinking, planning, deciding, implementing and evaluating community health programmes. Community participation in turn is totally dependent on systematic health education, which consists of motivation of policy makers at all levels, creation of local awareness of disease prevention through the use of community resources, education on specific local problems and their alternative solutions and health education training for primary health care workers. Health education is called "progressive", i.e. it includes joint problem identification, planning and evaluation, as opposed to "didactic teaching". It is "learning by doing" and implies a constant change of roles between teacher and student. Seven phase

are distinguished: analysis of people's values, interests, needs and priorities regarding health; determination of prevailing values; definition of specific behavioural objectives; identification of positive and negative factors; determination of existing and needed resources; application of educational methods on the basis of the information gathered; evaluation of their impact, with modifying activities where necessary.

The development of short- and long-term plans is associated with assistance in self-appraisal and analysis of needs and solutions at local levels and with technological support for health education inputs at provincial levels, while policy makers at national level are kept informed and motivated. Health education should be integrated with other village development programmes, like sanitation, rural composting, animal health and dairy production programmes. The authors prefer the use of persons from within the community who have received some special training as health educators. Women, especially mothers, are the major target group which should be actively involved. School health education is considered less important since personal habits are formed at home at a pre-school age, and present educational systems are not change-oriented. An appeal to universal values is advocated, e.g. love for children, as health per se may not be consciously valued. The realization of some short term results may have a visible impact on the socio-economic status of the villagers. The use of media and aids should only serve as a tool in an interpersonal approach. A way should be found to reconcile the priorities set by the community and the means available to meet their raised expectations. The community should arrive at an understanding of primary health care as an augmentation of the existing health services. The conclusions arrived at by the UNICEF/WHO Joint Committee on Health Policy, when investigating community involvement in primary health care, should be incorporated.

A diagram on the health educational components in the control of enteric infections is added to illustrate its integrative function.

KW: felt needs, health education, integrated rural development, manpower, planning, preventive health, primary health care, target groups.

see also: New South Wales Department of Health (1972)
UNICEF/WHO JCHP (1977)

138. WHYTE, A.V.T.
(Institute for Environmental Studies, University of Toronto)

COMMUNITY HEALTH CELL
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Koramangala
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India

Towards a user-choice philosophy in rural water supply programmes, *Carnets de l'Enfance*, paper presented at the International Development Research Centre Seminar on Rural Water Supply and Sanitation, Lausanne, 29 May - 1 June, 1973, 34, (1976), pp. 28-45, (English, French, Spanish summary).

DA: -

CO: -

AN: To increase the success rate of rural water supply projects, a wider range of alternatives in designs and management systems should be offered to the community. Flexible packages for water supply systems should consist of standardized components for water extraction, storage and distribution, standardized organizational components to select a complete management system (collection of dues, labour for construction, cash for repairs and replacement, maintenance service, etc.) and the integration of rural water and sanitation education into a broader health education and medical care programme.

The author criticizes the single standardized organizational structure (usually an elected water committee) imposed on the community from the outset and points out that social patterns of water use, management and beliefs will already exist for traditional supplies. This is illustrated with examples from Mexico and Iran. Adaptation of the modern system to the traditional one should be considered.

Traditional water supply systems are often characterized by the use of different sources for different purposes (drinking, clothes washing, bathing); the existence of varying socio-cultural patterns for water use, e.g. communal washing places and hours, water taste preferences; adaptations to the physical environment, e.g. stone and branch dams or bamboo aqueducts, which have a minimum of environmental impact or social consequences and a variety of traditional organizational structures, which may occur within an area which is otherwise (geographically, socio-culturally and administratively) a natural unit.

An example of such local differences in a homogeneous district is the Oaxaca valley in southern Mexico, where traditional water organization varies from none at all to formal structures and rules (elected committees or a single water controller, fixed or weighed rates and single or inter-village organization on times, water discharge, rates and rules).

Another important factor is the existence of different styles of decision-making in communities, as illustrated by the "feeling out" of a consensus through individual contacts among nomads in Iran, versus the confrontation of views in public meetings of Mexican villagers.

Suggestions for designing user-choice systems are: increase of local involvement in the design process; integration into a broader health programme, creation of new roles associated with water supply, such as local water systems mechanics with a general training, so that they can also run a small general repair shop in the village, and the compilation of a catalogue of standardized organization components, from which the community can select a complete management system which suits its particular socio-economic and cultural situation.

A social scientist should be employed (alongside an engineer and a health education/medical expert) to find out the range of existing management practices and social institutions, the strength of their support in the community and their potential for adaption to modern systems. He is to design the organizational components for various aspects of water management, such as the collection of dues, labour for construction and cash for repairs and the replacement and maintenance service. One method would be the compilation of a village book, with quantitative and qualitative data.

KW: administration, design, health beliefs, implementation, maintenance, manpower, planning, research, water use, health education.

see also: WHITE and BURTON (1977)

139. WHYTE, A.V.T.

(Institute for Environmental Studies, University of Toronto)

Guidelines for field studies in environmental perception, MAB Technical Notes, UNESCO, Paris, 5, (1977) 117 p.

DA: -

CO: -

AN: Methodological guidelines are given for planning field investigations in environmental perception. Data can be collected through questioning, listening and observation, with a structured or unstructured, intervening or non-intervening, experimental or in-depth case study approach. The discussion of the various methods, their advantages and limitations, is illustrated with examples from the literature. It deals with direct observation, structured and unstructured, and with a number of specialized techniques like behavioural mapping; with indirect observation, which uses the effects of human actions, e.g. the relative width and wear of tracks and

paths, or water sale revenues as a measurement of human behaviour; and with participant observation, in which direct observation, questioning and listening take place while the researcher shares the life and actions of the people he is studying. Interviewing is another method, e.g. unstandardized interviews, e.g. with key persons or questionnaires, with open, pre-coded open, closed, multiple choice, scaled and card questions. Projective techniques, can also be used, in which people are asked to react freely to a stimulus, like a word, sentence or story (verbal tests) or picture, photograph, cartoon, blank sheet of paper or game (graphic test), or various types of scales such as attitudes scales, multi-dimensional scales, repertory grids, semantic differential, personality measures, internal-external control scale and the environment response inventory. Finally, use can be made of oral and written evidence, e.g. reactions to researcher organized environmental walks, time diaries, and local histories.

Finally, the design of field studies is discussed, illustrated with four models selected from the literature, including a discussion of field method selection. One example of the combined use of three techniques in the field is the supplementation of direct observation on well water use in Ethiopia by interviews with well users and investigation of records on water sales.

KW: bibliography, environmental research, research design and methodology.

140. WHYTE, A.V.T.; BURTON, I.

(Institute for Environmental Studies, University of Toronto)

Water supply and community choice, in R. Feachem, M. McGarry, D. Mara (eds.), Water, Wastes and Health in Hot Climates, Wiley and Sons, London, (1977), pp. 113-129.

DA: -

CO: -

AN: In constructing improved water supplies in developing countries, all choices lie with the water agency, while in using the supply, the individual household often has a choice between various (traditional) alternatives to the modern supply, to which criteria of water quality (e.g. taste), technological feasibility and economics (cost, distance, effort) are applied. Commitment to better use and care of the improved supply can be realized by increasing the awareness of health and related benefits through health education.

The authors point out that an important aspect of the choice between alternative supplies, that of community, village or group choice, has been neglected. They state that in choosing between alternative sources of supply, communities and individuals have their own frames of reference and criteria with respect to calculating sets of trade-offs and that choices imposed on communities are accepted with less commitment than the choices they have made for themselves.

A model of a community frame of reference for choosing between alternative supply systems is given, based on the decision process in an Indian village in Central Mexico. This frame consists of nine criteria: recognition as a source, source quality, technical feasibility, effort, cash costs, social equality, progress, social interaction and villages autonomy. The ultimate result of the process was the rejection of the proposed 2 or 3 village wells in favour of the traditional, distant source, until house connections for the whole village could be afforded. The authors conclude that social and group values play an important role additional to individual criteria because water, being a vital common commodity, is both a unifying and a segregating factor in the community. The existence of a water distribution system and its rules has an important function in the system of the social relationships within and between communities, e.g. in recognizing geographical advantages (flowage rights for upstream users) by trying to even them out (riparian right), or replacing them by alternative types of control (kinship rights, communal rights). Introduction of another supply may alter this social system, and at the same time alter the external relations of the community, usually towards increased dependency on the national and regional government and decreased ability to act independently in relation to other communities. More attention should be paid to such social aspects of water supply improvements in rural communities.

Self-help schemes for construction and sometimes maintenance do not allow the community much scope in the supply system decision making, and even community participation in the part of the decision making process, as occurred in a health and sanitation project in Chiapas, Southern Mexico, did not commit individuals to using the facilities. Only 59 per cent used the medical post instead of traditional cures, and only 65 per cent of those who had private latrines actually used them. The authors criticize the limitation of community choices to details rather than fundamentals and the standardization of self-help schemes in patterns of cooperatives or elected committees, which does not allow enough flexibility for finer points of community organization and social differences.

The authors point at the variation in styles of community

decision making, comparing tribal nomadic decision making in Khurzistan, Iran (consensus by continued, informal discussion) with the process of peasant decisions in Mexico (consensus by public confrontation), and conclude that community choice is not necessarily or even generally a process of ordered, binary choices like the individual process. The degree to which it approximates such an individual model may well be a measure of the absolute authority of its leaders and the individualism of their decisions. Immediate needs for developing a more user-choice oriented approach stressed by the authors are development of locally adapted, understandable and visibly flexible technologies, development of social analysis methods for evaluation of local perception needs and community (water) dynamics as a normal part of the design phase and development of flexible management systems responsive to findings of social analysis.

KW: administration, adoption criteria, attitudes, design, planning, research, social impacts, social structure.

see also: WHYTE (1976)

141. WINTER, E.R. de

Health services of a district hospital in Malawi, Van Gorkum, Assen, (1972), 303 p.

DA: 1967-1970

CO: Malawi

AN: A study of the position and functions of a district hospital as a nucleus for community health services, resulting in a community health pilot project, to test the impact of a package approach on rural health (under five clinics, health education, home visits and community development).

Two villages, one to act as a control village, were selected for reasons of their geographical proximity to the hospital only. A baseline study was carried out, consisting of a medical and a sociological survey, the latter limited to the action village and covering socio-economic status, housing (including sanitation facilities), nutrition knowledge and attitudes, and aspirations. Interviews were supplemented by personal observations, e.g. on presence and state of sanitation facilities. The situation in the action village was found to be below that of the control village. The action programme aimed at the improvement of sanitation, housing, nutrition, child care, ante-natal care, personal hygiene and inoculation through a comprehensive approach: week-

ly outpatient and under-five clinics, 61 health education sessions with lectures, discussions, demonstrations and practical exercises, homecraft lessons, home visits by a health assistant on environmental sanitation and the creation of a (male) Health Committee and a Women's Committee. The programme is reported in the form of a diary showing the evolution and practical problems of a field project.

Medical and sociological evaluation studies were carried out in both villages, showing a significant improvement in latrine construction, maintenance and nutrition practices, bringing the inhabitants up to the level of the control village, although it has not yet resulted in a better health status. Comparison between the two villages is hampered by the lack of a pre-measurement of sociological variables in the control village.

KW: environmental sanitation, evaluation, health education, media and methods, preventive health.

142. WOODS, J.L.

(UNDP Development Support Communication Service, Bangkok)

Communication - an integral element of administrating development programmes, Asian Centre for Development Administration Workshop on "Administrative Support Planning for Development Projects", Uncleared Draft.

DA: -

CO: -

AN: Communication in organizational structures has received little attention in developed countries and hardly any in developing countries. The traditional approach was a linear one (Berlo's SMCR model: Source-Message-Channel-Receiver) which concentrated on information, often causing an information overload. The author favours a systems approach, analyzing the three-way flow of communication (upward, downward and horizontal) among 7 basic categories: political leaders, planners, administrative support officials, technical specialists, field cadres, intended beneficiaries and international agency officials. This approach can be used for the analysis and improvement of communication in administrating development programmes. Attention should be paid to the informal channels which supplement formal communication flows.

In order to facilitate the use of various communication chains by administrators of development programmes, a guideline is given consisting of 11 steps: definition of activity, identification of

decision making centre, identification of key-individuals, determination of incoming and outgoing information needed, determination of individual action, selection of messages, selection of communication methods, design of strategy including methods, messages, timing, costs, evaluation criteria etc., pretesting for large, complex communication systems, implementation of strategy and constant guidance and evaluation.

The communication between administrator and project participants will be on several levels: individual, in small groups, intra-organization, inter-organization, outside the system and with international organizations. The author mentions several communication methods, used at various levels, but no evaluation is given.

Recommended are action research on the communication processes in development programmes, covering all structural levels, top and bottom, the development of communication training courses for development programme personnel, especially for administrators and fieldworkers, the integration of communication training in formal education, such as universities or national training institutes, and government analysis of communication within and among ministries and departments and with outside development organizations.

KW: administration, communication flows and channels, organizational structure, training.

143. WORLD BANK/Energy, Water and Telecommunication Department

Socio-cultural aspects of water supply and excreta disposal, Prepared by M. Elmendorf and P.K. Buckles, for the World Bank Research Project "Appropriate Technology for Water Supply and Waste Disposal in Developing Countries", P.U. Report, World Bank, Washington D.C., 15, (September 1978), 54 p., 2 ann.

DA: 1977

CO: Colombia, El Salvador, Guatemala, Haiti, Mexico, Nicaragua

AN: Case studies in eight rural and urban fringe communities in six Latin American countries were used to develop an approach for the integration of social and cultural factors into the design of water supply and excreta disposal technologies and the organizational systems for their implementation, operation and maintenance.

Data were collected in short field studies (3 days to one month)

by teams of a male and female social scientist. The methods used were interviews of both male and female members of 30 random households with a questionnaire on water sources, collection, use, water and environment perceptions, willingness to contribute and cooperate, waste water disposal and excreta disposal; direct observations on water collection and reuse; indirect observations on personal hygiene and latrine use; unstructured interviews with local leaders and programme personnel; informal village conversations and observations on daily life and study of agency records and interviews with agency personnel at regional and national levels.

After a discussion of the case studies cross-communal generalizations are made concerning household perceptions, preferences, practices and incentives, community felt needs, adoption stimulants and constraints.

It was found that, generally, no link was seen between environmental sanitation and health, but that a sudden deprivation of a safe supply did cause understanding of this relationship. Abundance, proximity, color and taste of the water were the main criteria for appreciating a supply. Costs, fear of eviction, tap collection problems and a credibility gap between the community and government agencies were the main constraints. Habits of the productive use of waste water were frequently found.

Excreta disposal facilities were in general not a felt need, but they were acceptable more readily when linked with a -desired- water supply or health clinic, while re-use of human excreta was also understood and practiced informally.

Sharing water and excreta disposal facilities was only acceptable in case of lack of space, rocky soil, family or strong friendship ties, and maintenance by attendants. Status symbol values (as defined by village leaders or declined through a cosmopolitan outlook) and social pressures, e.g. to comply with a collective village decision, also stimulated adoption.

It is recommended that socio-cultural factors be integrated in environmental sanitation programmes. This also applies to the design of the technology, with quantitative and qualitative social research, in which members of the community can be involved. The research should investigate feasibility, cost efficiency, comprehensibility to the users, fulfillment of users' needs and expectations, financial capacities of the community and suitability for user maintenance. Other factors to be taken into account are the means for diffusion, through the evaluation of existing institutions, programmes, channels and systems, and the creation of new ones, to prepare the way for responsive administration. It is necessary to integrate the promotion of environmental sanitation facilities and health education right from the start, using male and female local promoters. A pro-

gramme needs an efficient delivery service, instruction for operation and training in maintenance of members of the community. Then follows the motivation for adoption, with community consultation and organization for community inputs in project initiation, design (such as choice in level of service and siting) the scheduling of labour intensive activities, instruction for operation, and maintenance, the frequency and mechanism for fee collection and the authority to enforce sanctions.

The integration of rural water supply and sanitation programmes, the linking of excreta disposal programmes to other programmes with a higher village priority and the involvement of women in the planning and promotional stages are strongly recommended.

The questionnaire used for the sociological survey is added as annex A. In annex B an outline is given for the involvement of the community in environmental sanitation programmes, including a flow diagram covering the whole process from the first contacts to the joint evaluation.

KW: adoption process, attitudes, bibliography, constraints, design, excreta disposal, extension, felt needs, health education, implementation, leadership, manpower, operation and maintenance, planning, practices, research, water use.

144. WORLD BANK

Village water supply, A World Bank paper, World Bank, Washington D.C., (March 1976), 71 p., 4 ann.

DA: -

CO: -

AN: An analysis of the rural water supply problem is followed by a discussion of several areas and approaches for improvements and guidelines for future World Bank water supply projects. The analysis is based on the WHO 1970 survey, a World Bank research project in 1972-1974 (Saunders and Warford, 1976), sector studies under the WHO/World Bank Cooperative Programme, and experiences with water supply loans of the World Bank and the Inter American Development Bank.

The first problems identified are institutional ones. Rural water supply policies as part of a national water supply policy, institutions capable of project development without agency-proliferation, water organizations at the local level, selection and evaluation criteria, training programmes and trained personnel at

all levels and adequate provisions for operation and maintenance, all these are often lacking. Financial problems concern the per capita increase of costs with a decrease of village size, relatively low income of villagers and limited village financial resources, the lack of a policy to obtain maximum financial support from areas to be served, a lack of local government infrastructure, inability to collect and retain locally collected taxes for local use and difficulties in collecting fees from users. There is insufficient village motivation and public health education, causing a lack of awareness of potential benefits and willingness to pay for them, while the seasonal availability of other water sources of questionable quality also limits willingness to pay. Technological problems include the lack of a support agency, and inadequate lines of communication and supply.

The technology of the supply (level of service, water quality and quantity including treatment, standard designs and additional excreta disposal facilities) should be related to the willingness and capacity of the villagers to pay. This implies that the system design of each sub-project needs to be decided in consultation with the villagers, who should be told about the alternatives available under the programme and the financial consequences of each of them. Where only basic systems are possible, villagers should be involved in the finding of sites. Village contributions may amount to 3-20 per cent of capital costs while water charges can be 3-5 per cent of the income of the heads of rural households. Regular review of the minimum levels of payment is necessary. Complicating factors are the relatively higher costs for small villages and surface water sources, often necessitating installation of the most expensive systems in those villages which are least able to afford them. Collection can be through metering for larger consumers, flat rates for small consumers and public hydrant users and selling by subcontractors.

Water supply institutes can be part of national or regional water supply programmes, of special rural development programmes and of multi-sectoral projects, such as regional integrated development schemes.

Investments in rural water supplies are justified by their direct and indirect quantitative and qualitative benefits, e.g. for public health (reduction of water related diseases), economic development (production increase, local industries, time and effort reduction, increased output through improved health, and better utilization of food as result of a reduction in enteric and parasitic diseases), slowing of migration (although the opposite may also occur), income redistribution, improvements in village level institutions, lower per capita costs and fire protection.

KW: costs, economic and health impacts, evaluation, financing, organizational structure, policy.

145. WRIGHT, A.M.; OWUSU, S.E.; HANDA, V.K.
(University of Science and Technology, Kumasi, Ghana)

Rural latrines in Ghana, paper contributed to the Conference "Sanitation in Developing Countries Today", OXFAM/Ross Institute of Tropical Hygiene, Oxford, (5-9 July 1977), 17 p.

DA: -

CO: Ghana

AN: After a discussion of the relationship between excreta disposal and diarrhoeal diseases, two surveys are presented, carried out as a part of a rural waste disposal programme in Ghana.

A national survey was carried out in 151 villages on type and number of private and communal latrines in use, the source, reliability, quality and adequacy of the water supply, morbidity and mortality patterns and occupational structure. Four types of latrines were identified, and the average number of users was 141 for every private latrine and 389 for every communal latrine. However, great regional variations were found for the latter: from 184 to 1713 users per communal latrine.

Based on the results of this survey, 5 settlements were selected in two regions (Upper and Volta Region). An at random sample was drawn of 10 per cent in the large and 50 per cent in the small communities.

One female and one male member of each household and the children between 7 and 15 years in every 4th household were interviewed on patterns of use of private and communal latrines, ablution methods, accessibility to communal latrines, attitudes to communal latrines, desired improvements and educational and income level of respondents.

In the Upper Region, where 78 per cent of the respondents had had no formal education, 14 per cent had private latrines, 17 per cent used communal latrines and 69 per cent the open bush. For the Volta Region (with 44 per cent without formal education), these figures were 7, 88 and 1 per cent respectively, with an additional 4 per cent sharing neighbours' latrines. In both regions, water and toilet paper were rare ablution materials (varying from 1 to 5 per cent). The distance to the communal latrine is generally over 50 meters, but 31 per cent of the respondents in the Volta Region lived within the 50 meters circle, as opposed to only 1 per cent of the Upper Region re-

spondents.

Dissatisfaction with communal latrines was high, 83 per cent in the Volta Region and 39 per cent in Upper Region, where another 49 per cent gave no reply. The perceived problems of communal latrines were bad odour, fly and rodent nuisance, stagnant water, distance, lack of privacy and untidiness of the squatting area. Satisfaction was based on the cleanliness of the superstructure. Only 21 per cent of the respondents were satisfied with a squatting type of latrine. Desired improvements for private latrines were a more regular collection of night soil, seat covers and ventilation and a water closed system. For the communal latrines there were an increased number, better physical appearance and superstructure, odour and fly control, privacy and a seating design. Most of the villagers were willing to contribute free labour.

As a preliminary result of these studies, two types of latrines for private use have been suggested for further development and testing.

KW: attitudes, excreta disposal, felt needs, practices.

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